REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE *(DD-MM-YYYY)*	2. REPORT TYPE	3. DATES COVERED *(From - To)*
29-May-2013	Annual Report	October 2011- September 2012

4. TITLE AND SUBTITLE

Tri-service Disability Evaluation Systems (DES) Database Analysis and Research Annual Report 2013

5a. CONTRACT NUMBER

W81XWH-12-F-0115

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

847714

6. AUTHOR(S)

Gubata, Marlene E, Boivin, Michael R, Cowan, David N, Packnett, Elizabeth, Piccirillo, Amanda, Elmasry, H, Connor, Ricardford, R.

5d. PROJECT NUMBER

2

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

AMSARA, Department of Epidemiology, Preventive Medicine Program
Walter Reed Army Institute of Research, 503 Robert Grant Road, Silver Spring, MD 20910

8. PERFORMING ORGANIZATION REPORT NUMBER

XA-WRAIR/MD

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

Walter Reed Army Institute of Research
503 Robert Grant Road
Silver Spring, MD 20910

10. SPONSOR/MONITOR'S ACRONYM(S)

WRAIR

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT

Approved for public release; distribution is unlimited.

13. SUPPLEMENTARY NOTES

The original document contains color photos.

14. ABSTRACT

The mission of the Accession Medical Standards Analysis & Research Activity (AMSARA) is to support the development of evidence based medical standards for the Department of Defense (DoD) by guiding improvement of medical and administrative databases and conducting epidemiologic and special studies analyses. AMSARA's mission has recently expanded to include analysis and studies of existing disability tri-service evaluation system by the request of the Office of Assistant Secretary of Defense, Health Affairs. The DES Annual Report includes executive summary, methods, history of medical disqualification, pre -existing conditions, accession medical waiver, and hospitalization among service members evaluated for disability, service disability evaluation databases limitations from FY 07 to FY12, data quality and standardization recommendations.

15. SUBJECT TERMS

Military medical standards, disability discharges, risk factors, enlisted personnel, retirement, active duty, retention, attrition, medical waiver, and epidemiology of disability.

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			Michael Boivin, MAJ, MC, USA
U	U	U	SAR	70	*19b.* TELEPHONE NUMBER *(Include area code)* 301-319-3094

Tri-service Disability Evaluation Systems Database Analysis and Research

Prepared by
Accession Medical Standards Analysis and Research Activity
Preventive Medicine Program
Walter Reed Army Institute of Research
503 Robert Grant Avenue
Silver Spring, Maryland

Annual Report 2013

Tri-service Disability Evaluation Systems Database Analysis and Research

Contributors

Marlene E. Gubata, MD, MPH
MAJ, MC, US Army
Chief, Department of Epidemiology

Michael R. Boivin, MD, MPH
MAJ, MC, US Army
Chief, Accession Medical Standards Analysis and Research Activity (AMSARA)

David N. Cowan, PhD, MPH
Program Manager, AMSARA
Contractor, Allied Technology Group, Inc.

Elizabeth R. Packnett, MPH
DES Team Leader
Principal Public Health Analyst, AMSARA
Contractor, Allied Technology Group, Inc.

Amanda L. Piccirillo, MPH
Public Health Analyst, AMSARA
Contractor, Allied Technology Group, Inc.

Hoda Elmasry, MPH
Public Health Analyst, AMSARA
Contractor, Allied Technology Group, Inc.

Ricardford R. Connor, MPH
Public Health Analyst, AMSARA
Contractor, Allied Technology Group, Inc.

Preventive Medicine Program
Walter Reed Army Institute of Research
503 Robert Grant Road, Forest Glen Annex
Silver Spring, MD 20910
http://www.amsara.amedd.army.mil

This effort was funded by the Department of the Army.

Contents

Tables and Figures

FIGURES

TABLES

Executive Summary

The Accession Medical Standards Analysis and Research Activity (AMSARA) has provided the Department of Defense with evidence-based evaluations of accession medical standards since 1996. As part of this ongoing research activity, data are collected from each service's Disability Evaluation System (DES). Disability evaluation is administered at the service level, with each branch of service responsible for the evaluation of disability in its members. Variability in the type of data available in existing AMSARA databases for each service is present as the result of service level collection of data on disability evaluations and the lack of accession information on many individuals evaluated for disability. AMSARA's mission was expanded in FY 2009 to include audits and studies of existing disability evaluation system by the request of the Office of Assistant Secretary of Defense, Health Affairs. This report describes analyses conducted in fiscal year 2012 of existing DES data collected for accessions and disability research through the end of fiscal year 2012.

In the period from FY 2007 to FY 2012 data were collected on over 150,000 disability evaluations of approximately 130,000 service members. Over half of service members evaluated for disability are evaluated for discharge from the Army. Regardless of service, the vast majority of disability evaluations were completed on active duty, enlisted personnel. Most personnel who undergo disability evaluation are male, aged 20-29 at the time of disability evaluation, and white.

Musculoskeletal conditions, the most common medical condition associated with disability, were present in 40-75% of individuals evaluated for disability, depending on service. Neurological and psychiatric conditions were the next most common unfitting conditions. The particular conditions associated with each body system category vary by service. Dorsopathies, arthritis, and limitation of motion were the most common musculoskeletal conditions in all services. Posttraumatic stress disorder was the most common condition associated with psychiatric disability in the Army and Marine Corps while mood disorders were the most common psychiatric condition in the Navy and Air Force. Traumatic brain injury is the most common neurological condition among Army and Marine Corps; paralysis was most common type of neurological condition in the Navy and Air Force.

The most common disposition assigned following disability evaluation in FY 2012 varied by service. In the Army and Air Force permanent disability retirement was the most common disposition as compared to placed on the temporary disability retirement list in the Navy and Marine Corps. This is in contrast to the previous five year period when the most commonly assigned disposition in all services was separated with severance pay followed by placed on the temporary disability retirement list. In FY 2012 10% was the most commonly assigned rating to disability in all services. The proportion of evaluations resulted in a disability rating of 30% or higher in FY 2012 varied from 45% in the Navy to 60% in the Army.

This report also describes the history of accession medical disqualification, presence of pre-existing medical conditions at accession, history of accession medical waiver, and hospitalization among individuals evaluated for disability. History of permanent medical disqualification prior to accession in service members evaluated for disability ranged from 7% in the Air Force to 12% in the Army. Similarly, temporary disqualifications were rarest in Air Force

personnel evaluated for disability as compared to the other services and highest among Army disability evaluations. The distribution of ICD-9 diagnoses at MEPS accession examination among the disability population were similar to that of the military population as a whole with exceeding weight and body fat standards the most common conditions listed in MEPS accession medical examination records. Conditions listed in accession medical waiver applications among those evaluated for disability were also similar to those observed in the general applicant population. Hospitalization among service members evaluated for disability was most commonly associated with a mental health diagnosis, which is in contrast to hospitalizations among the general active duty population where injuries and fractures are more commonly associated with hospitalization.

Based on the data presented in this report and the variability observed in service disability evaluation system data, we present the following programmatic recommendations:

1. Include Medical Evaluation Board (MEB) International Classification of Disease 9th Revision (ICD-9) diagnoses in all disability evaluation records, allowing for more in depth analyses of the specific medical conditions that result in disability evaluation, separation, and retirement.

2. Record each service member's Military Occupational Specialty (MOS) at the time of disability evaluation.

3. Include variables to indicate date of initial diagnosis, onset of symptom, or injury in service members evaluated for disability.

4. Expand the VASRD codes, particularly musculoskeletal codes, to reduce the utilization of analogous codes and provide more complete information on the disability condition.

Introduction to the Disability Evaluation System

The Disability Evaluation System (DES) process follows guidelines laid out by the Department of Defense (DoD) and public law. Disability evaluation is administered at the service level, with each branch of service responsible for the evaluation of disability in its members. While inter-service differences exist, the disability evaluation process for all services includes two main components: an evaluation by the Medical Evaluation Board (MEB), and a determination of a service member's ability to perform his/her military duties by the Physical Evaluation Board (PEB) [1,2].

The disability evaluation process is described in Department of Defense Instruction 1332.38 and serves as the basis for each service's disability evaluation [3]. The process of disability evaluation begins when a service member is diagnosed with a condition or injury at a Military Treatment Facility (MTF). If the condition or injury is potentially disqualifying or significantly interferes with the service member's ability to carry out the duties of his/her office, grade, or ranking, the case is referred to the MEB. Service members who meet medical standards or considered capable of carrying out his/her duties are returned to duty [1-2, 4-6]. Those unable to perform assigned duties are forwarded to an Informal Physical Evaluation Board (IPEB) for a medical record review, and a determination regarding a service member's fitness for continued military service. Members deemed fit are returned to duty, while those deemed unfit are discharged or placed on limited duty. In the event a service member is dissatisfied with the determination made by the IPEB, he/she can appeal to the formal PEB (FPEB) and eventually to the final review authority (which varies by service, as detailed below), if the case is not resolved to the service member's satisfaction.

Key variables collected at each stage of disability evaluation are shown in Figure 1. At the MEB, each case receives a diagnosis and a determination as to whether the service member is able to perform assigned duties [4-6]. Cases move to the IPEB if it is determined the member cannot perform his/her assigned duties or the member does not meet medical retention standards. The IPEB panel must determine the member's fitness, and disability rating using the appropriate Veterans Affairs Schedule of Rating Disability (VASRD) code for the disabling condition, the appropriate disposition for the case and whether the condition is combat related [1]. If a service member does not agree with the determination of the IPEB, the decision can be appealed to the FPEB, and eventually to the final reviewing authority (Service Secretary), where the determination of the FPEB is reviewed. The FPEB is an independent board from the IPEB and the decision may be different from that of the IPEB. The final reviewing authority can either concur with the FPEB or revise the determination.

Figure 2 and Figure 3 describe the Army and Navy/Marine Corps disability evaluation processes, respectively. Those who meet medical retention standards at the MEB or are able to continue military duties are returned to duty, while cases that do not meet medical retention standards, in the Army, or are not able to perform military duties, in the Navy and Marine Corps, are forwarded to the IPEB for further review. The IPEB makes a fit/unfit determination and the service member is either returned to duty (deemed fit) or medically discharged (deemed unfit) and assigned a disposition and rating. Dispositions assigned include separated without benefit, separated with severance pay, permanent disability retirement, or temporary disability retirement. Ratings vary from 0-100% disability. Those assigned a disposition of separated without benefits are either unrated or rated 0%. Separated with severance pay carries a rating varying from 0% to 20%; while permanent and temporary disability retirement carry ratings of 30% or higher.

The member can appeal the IPEB disposition and rating determinations, though appeals to the FPEB may be denied if a member is deemed fit by the IPEB. Following service member appeal of the IPEB determination, the case is reviewed by the FPEB or reconsidered by the IPEB, again to determine the fitness of the service member. An Army service member can appeal the FPEB determination to the United States Army Physical Disability Authority (USAPDA); the USAPDA is the final appeal authority before separation or retirement. A Navy or Marine Corps service member can appeal an FPEB determination to the Secretary of the Navy; the Secretary of the Navy is also a final appeal authority before separation or retirement from service. In the Navy and Marine Corps, all discharge recommendations are forwarded to the Service Headquarters where the recommendation for discharge can be accepted or denied (Figure 3). Both Services (Department of the Army and Navy) have a Board for Correction of Military Records which can be petitioned once a service member has left military service.

The Air Force disability evaluation process is described in Figure 4. The Air Force disability evaluation process is generally similar to that of the other services; disability evaluation begins with the MEB where cases are evaluated against medical retention standards, those not meeting retention standards are referred to the IPEB [4]. If a service member disagrees with the decision of the IPEB, it can be appealed to the FPEB, and eventually to the Secretary of the Air Force. In contrast to other services, MEB cases not forwarded to the IPEB can be appealed through the Air Force Surgeon General to determine if a case should be forwarded to the IPEB.

The objective of this report is to summarize the content of existing military disability databases, to provide a basis for studies of the prevalence of disability in the U.S. military as well as risk factors for disability evaluation, separation, and retirement overall and for specific disability condition types. Though the general process for evaluating service members for disability discharge is similar across services, each service completes disability evaluation and collects and maintains disability evaluation data independent of one another. Small variations are present in the disability evaluation process across services and in the types of data collected across services. The Accession Medical Standards Analysis and Research Activity was established in 1996 for the purpose of supporting the development of evidence-based medical accession standards to mitigate morbidity and attrition among service members, and has received annual data extracts from the Army, Navy, and the Air Force since that time. These data were initially requested for the purpose of evaluating accession standards. AMSARA has been tasked by the Office of the Assistant Secretary of Defense, Health Affairs, since FY 2009, to perform an audit of tri-service disability evaluation systems using existing AMSARA databases.

FIGURE 1: KEY VARIABLES COLLECTED AT EACH STAGE OF DISABILITY EVALUATION

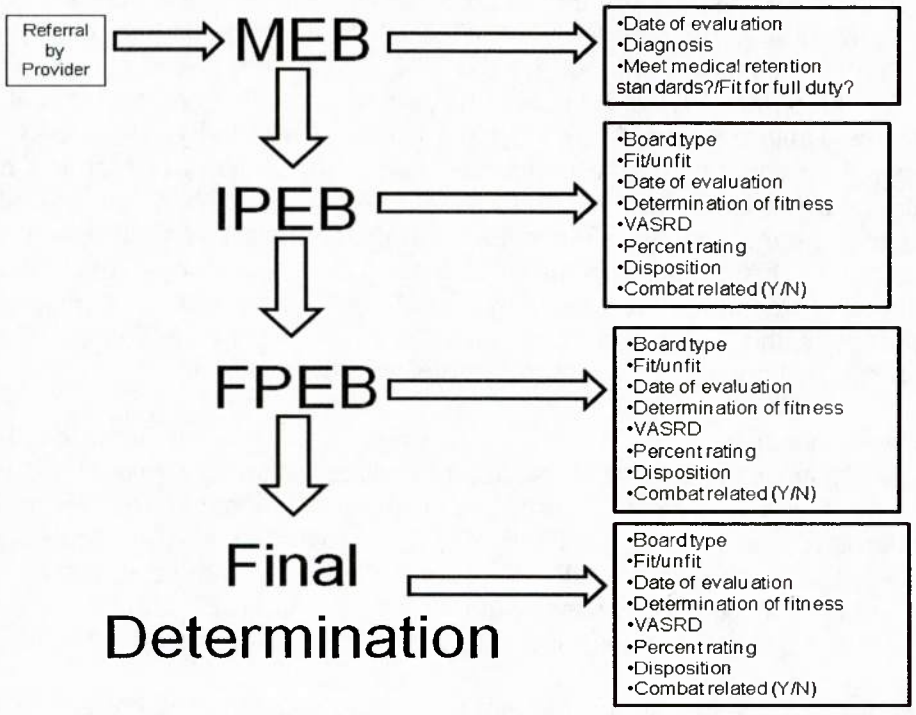
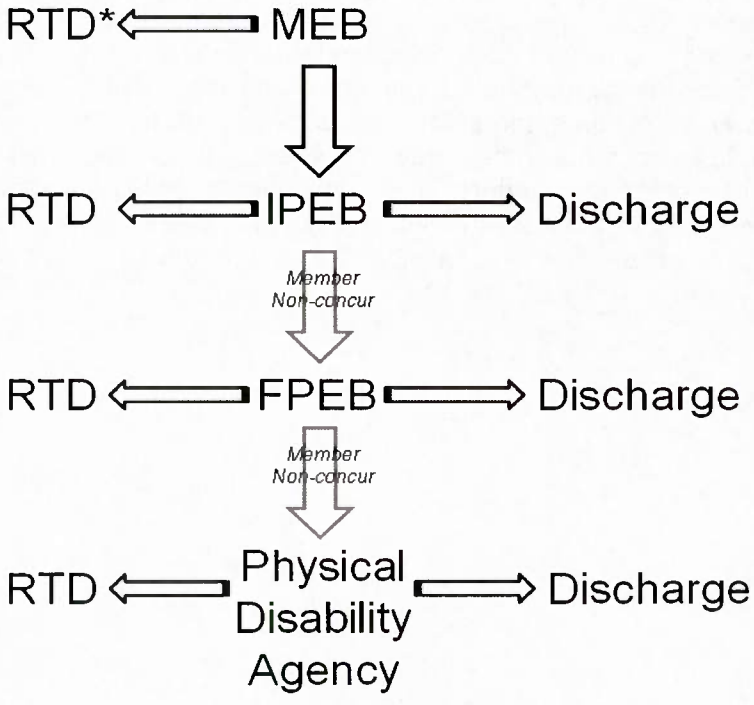
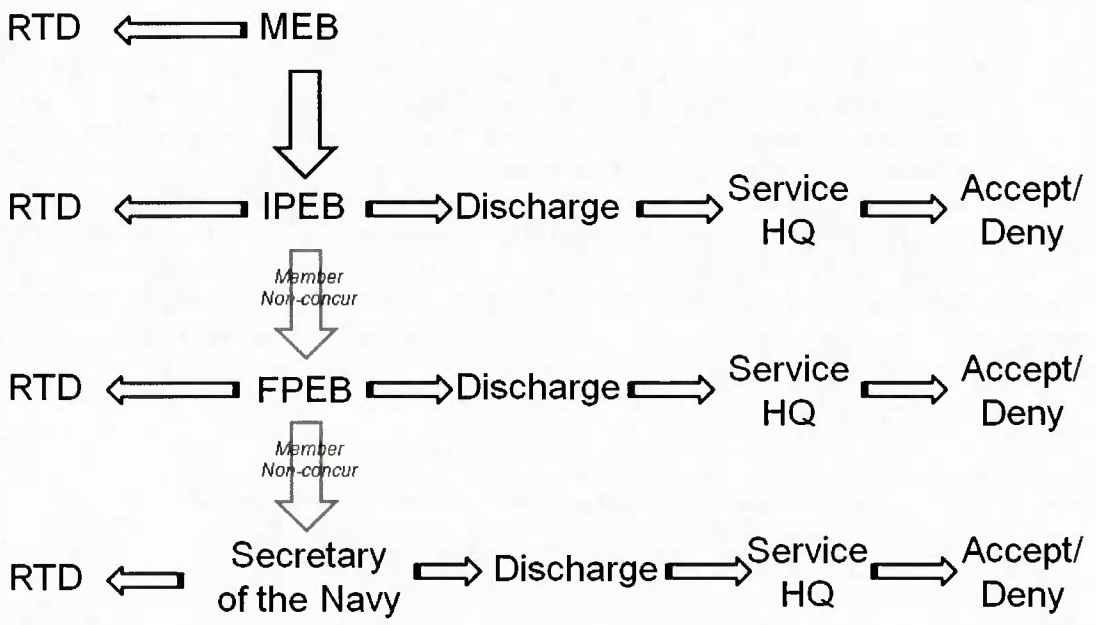


FIGURE 2: DISABILITY EVALUATION IN THE ARMY



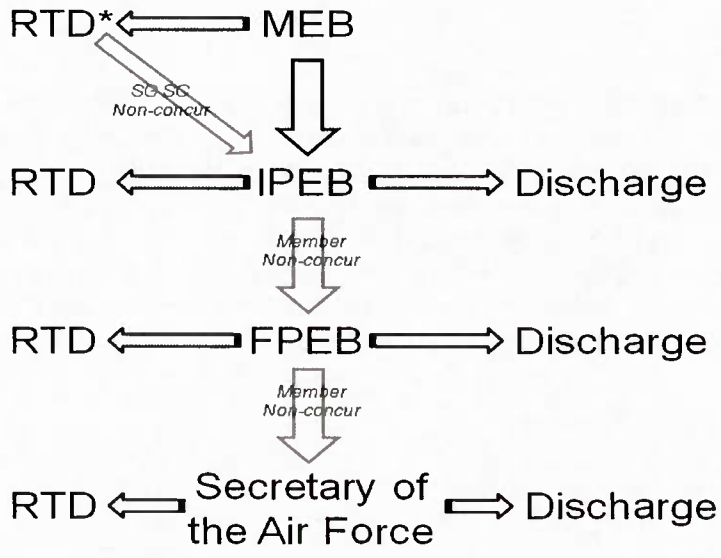
* RTD may be full or restricted duty per AR 40-501

FIGURE 3: DISABILITY EVALUATION IN THE NAVY AND MARINE CORPS*



*Secretary of the Navy Instruction 1850.4E

FIGURE 4: DISABILITY EVALUATION IN THE AIR FORCE



* RTD may be full or restricted duty per Air Force Instruction 48-123

Methods

Study Population

Table 1 shows the characteristics of the DES datasets by service. Databases maintained by the services may contain information not sent to AMSARA. Disability evaluation data were available for all services for enlisted service members and officers as well as active duty and reserve components. However, the types of records received from each service varied. All PEB evaluations for separately unfitting conditions in the Army, Navy and Marine Corps were transmitted to AMSARA for all years in which data are available. Air Force disability data only includes disability retirements and separations in years prior to fiscal year 2007. In addition, while Army and Navy/Marine Corps send AMSARA multiple disability evaluations for individuals for all years in which data are available, the Air Force does not provide multiple disability evaluations.

TABLE 1: CHARACTERISTICS OF DES DATABASES BY SERVICE

	Army	Navy/Marine Corps	Air Force
Years received	1990-2012	2001-2012	2007-2012
Type of evaluations included	All PEB	All PEB	All but TDRL Re-evaluations
Ranks included	Enlisted, Officer	Enlisted, Officer	Enlisted, Officer
Components included	Active Duty, Reserve	Active Duty, Reserve	Active Duty, Reserve
Multiple evaluations per individual?	Yes	Yes	No

To create analytic files for this report, service-specific databases were restricted to unique records with a final disposition date between October 1, 2007 and September 30, 2012. All ranks and components were included in these analyses. Multiple records were available at the individual level, defined using Social Security Number (SSN), for all services. When *individuals* were the unit of analysis, the last record per SSN was retained; when *evaluations* were the unit of analysis, multiple records per SSN were used. Unique evaluations were defined by SSN and date of final disposition. Therefore, an individual may appear more than once in the source population when evaluations are the unit of analysis.

Variables
Table 2 shows the key variables included in each DES dataset received by AMSARA. Additional variables are included in each services database, but not presented in this report. Variables in the DES databases fall into four general categories: demographic characteristics, MEB variables, PEB variables, and combat variables.

Demographic Characteristics
Demographic variables including age at disability evaluation, date of birth, gender, race, rank, and component are available in all except the Air Force database. Education was not available in any DES database and MOS was available only for all years in Army data received by AMSARA. AMSARA has traditionally utilized demographic variables from other sources, such as Defense Manpower Data Center (DMDC) personnel records and MEPS application records, in the analysis of demographic variables and these sources can be used in combination with disability databases to obtain information on certain constant demographic characteristics (i.e. date of birth, race, gender) for individuals who have personnel and application records in AMSARA databases. Demographic characteristics of individuals evaluated for disability in the Air Force are obtained using DMDC and MEPS records. Characteristics which can vary over time, such as education, rank, component, and MOS, are most valuable when collected at the time of disability evaluation.

MEB variables
Date of MEB evaluation is present in all disability databases. However, MEB diagnosis is only available for Navy/Marine Corps disability evaluations. For Navy/Marine Corps evaluations, the MEB diagnosis is recorded as a text field rather than as a code. Recoding of this field into ICD-9 codes by a nosologist will be necessary before further analysis of this field can be conducted.

PEB variables
All AMSARA datasets contain several key variables regarding the PEB evaluation including board type, date of PEB evaluation, VASRD and analogous codes, percent rating, disposition, and disposition date. VASRD codes, specific for the unfitting condition, and analogous coding that utilizes a VASRD code that best approximates the functional impairment rendered by a medical condition for which there is no specific VASRD code, are used to define unfitting medical conditions which prompted the disability evaluation. These codes are not diagnostic codes, but are derived from the MEB diagnosis, and specify criteria that are associated with disability ratings that determine disability compensation. The number of VASRD codes assigned to an individual diagnosis varies by service. In the Army, each condition can have one VASRD code and one analogous code, with up to four conditions included per evaluation. Up to three VASRD codes are used for the same condition in the Air Force with up to 14 conditions per evaluation. In the Navy and Marine Corps, the number of VASRD codes per condition is unlimited, and there is no limit to the number of conditions assigned to an evaluation.

TABLE 2:KEY VARIABLES INCLUDED BY DES DATABASE

	Army	Navy/Marine Corps	Air Force
Demographic Characteristics*			
Age/DOB	Y	Y	N
Gender	Y	Y	N
Race	Y	Y	N
Education	N	N	N
Rank	Y	Y	Y
Component	Y	Y	Y
MOS	Y	FY10-12	N
MEB			
Date of MEB Evaluation	Y	Y	Y
MEB diagnosis	N	Y	N
PEB			
Board type	Y	Y	Y
Date of PEB Evaluation	Y	Y	Y
VASRD	Y	Y	Y
VASRD Analog	Y	Y	Y
Percent Rating	Y	Y	Y
Disposition	Y	Y	Y
Disposition Date	Y	Y	Y
COMBAT			
Combat Related	Y	Y	FY10-12
Armed Conflict	N	Y	FY10-12
Instrumentality of War	N	Y	FY10-12

* Demographic characteristics at time of disability evaluation.

There are two general disposition types for members determined unfit for duty: separation and disability retirement. Separations can be administered with or without severance pay and are further classified as separated with severance and separated without benefits. Severance pay is given when a service member has a condition considered unfitting and is assigned a disability rating between 0 and 20 percent. Separation without benefits occurs when a service member is found unfit for duty, but the condition is determined to have occurred as a result of misconduct, negligence, or, if the member has less than eight years of service and the condition is the result of a medical condition that existed prior to service.

Disability retirements can be classified as either permanent disability retirement or temporary disability retirement. Permanent disability is assigned when the member is found unfit, and either has a length of service greater than 20 years, or has a disability rating that is 30 percent or higher, and the condition is considered unlikely to improve and may worsen. Temporary disability is assigned when a member is deemed unfit for continued service and either has a length of service greater than 20 years or has a disability percent rating of 30 percent or higher. However, those with temporary disabilities differ from those with permanent disabilities in that their condition, while considered disabling, is not considered stable for rating purposes. Service members placed on the temporary disability retirement list (TDRL) are re-evaluated every 6-18 months, for up to five years following initial placement on the TDRL. Once the unfitting condition is considered stable for purposes of rating by the PEB, the case is assigned a final disposition and percent rating. Therefore, a re-evaluation may result in a service member returning to duty or converting to any other disposition, though most on the TDRL eventually convert to permanent disability retired [1].

Combat Variables

Data received by AMSARA from the Army, Navy, and Marine Corps include variables regarding combat; the values of which are described per the DoDI 1332.38 [6]. These variables are used as a part of the percent rating determination taking into account whether the disability was caused by, exacerbated by, or had no relation to combat experiences.

Combat related is the standard that covers those injuries and diseases attributable to the special dangers associated with armed conflict, or the preparation or training for armed conflict. [6,7].

Armed conflict is described as the physical disability being a disease or injury incurred in the line of duty as a direct result of armed conflict. There must be a definite causal relationship between the armed conflict and the resulting unfitting disability. Armed conflict includes a war, expedition, occupation of an area or territory, battle, skirmish, raid, invasion, rebellion, insurrection, guerrilla action, riot, or any other action in which Service members are engaged with a hostile or belligerent nation, faction, force, or terrorists. Armed conflict may also include such situations as related to prisoner of war or detained status [6,7].

Instrumentality of war is described as a vehicle, vessel, or device designed primarily for Military Service and intended for use in such Service at the time of the occurrence of the injury. There must be a direct causal relationship between the use of the instrumentality of war and the disability, and the disability must be incurred incident to a hazard or risk of the service [6,7].

Other Data Sources

Applications for Military Service

AMSARA receives data on all applicants who undergo an accession medical examination for active duty or reserve service at any of the 65 Military Entrance Processing Stations (MEPS) sites. These data, provided by US Military Entrance Processing Command (USMEPCOM) Headquarters (North Chicago, IL), contain several hundred demographic, medical, and administrative elements on enlisted applicants for each applicable branch (regular, reserve, National Guard) of each service (Air Force, Army, Marine Corps, and Navy). These data also include records on a relatively small number of officer recruit applicants and other non-applicants receiving periodic physical examinations.

Accession Medical Waivers

AMSARA receives records on all recruits considered for an accession medical waiver, i.e. those who received a permanent medical disqualification at the MEPS and sought a waiver for that disqualification. Each service is responsible for its own waiver decisions about applicants, and information on these decisions is generated and provided to AMSARA by each service waiver authority. Specifically, AMSARA receives medical waiver data annually from Air Education Training Command (Lackland AFB, TX) for the Air Force; US Army Recruiting Command (USAREC, Fort Knox, KY) for the Army; US Navy Bureau of Medicine and Surgery (BUMED, Washington, DC) for the Marine Corps; the Office of the Commander, US Navy Recruiting Command (Millington, TN) for the Navy.

Accession and Discharge Records

The DMDC (Defense Manpower Data Center) provides data on individuals entering military service and on individuals discharged from military service. Data are provided to AMSARA annually for active duty accessions into service and discharges from military service.

Hospitalizations

AMSARA receives Military Health System (MHS) direct care hospitalization data annually from the MHS data repository. These data contain information on admissions of active duty officers and enlisted personnel, as well as medically eligible reserve component personnel, to any military hospital.

Descriptive Statistics for All Disability Evaluations

Service-specific characteristics of DES records are shown in Table 3. For the purpose of these analyses, and throughout this report, records are defined as units of a dataset (i.e. lines of data). In the Army and Air Force, one record contains multiple conditions per individual while in the Navy and Marine Corps the number of records is representative of the number of conditions adjudicated. Evaluations represent an individual's unique encounter with the PEB, defined using SSN and date of final decision. Therefore, each individual in this report may have more than one evaluation if they had multiple encounters for disability evaluation. The Army has more records, evaluations, and individuals evaluated for disabilities than the other services. The highest number of records per evaluation is found in the Navy (3.4) and Marine Corps (3.8). Across services the average number of evaluations per individual is only slightly higher in the Navy (1.2) and Marine Corps (1.3), relative to the Army (1.1) and Air Force (1.0). The average number of VASRD codes assigned per evaluation was highest in the Army (2.1).

Observed differences in the number of records, individuals, and evaluations can be partially accounted for by the differences in the types of records AMSARA received from each service. While the Army sends data on only those who were evaluated for an unfitting condition by the PEB, Navy/Marine Corps sends data on any individual evaluated by the PEB including those without any unfitting conditions. The inclusion of all PEB evaluations contributes a larger proportion of individuals without VASRD codes in the Navy/Marine Corps and thus a lower average across all records. TDRL re-evaluations are not included in the Air Force data which causes average evaluations/individual to be under-estimated.

TABLE 3: CHARACTERISTICS OF DES EVALUATIONS: FY 2007-2011

	Army	Navy	Marine Corps	Air Force
Total records	88,244	71,770	82,387	20,365
Total individuals	77,259	17,508	17,049	19,969
Total evaluations	87,854	21,349	21,778	20,365
Average records/evaluation	1.0	3.4	3.8	1.0
Average evaluations/individual	1.1	1.2	1.3	1.0
Non-TDRL	1.2	1.0	1.0	-
TDRL	1.4	1.6	1.7	-
Average VASRD/evaluation	2.1	1.6	1.8	1.6

Total DES evaluations are shown by service and fiscal year in Table 4. Individuals may be counted more than once in this table due to TDRL re-evaluations. Between 2007 and 2012, the number of disability evaluations per year has remained relatively stable in the Army and there is not wide variance in the proportion of total evaluations that occurred in each fiscal year. In the Air Force, the number of evaluations between 2008 and 2012 is relatively stable. In the Navy and Marine Corps increases in the number of evaluations were observed in 2012 as compared to previous year after being relative stable from 2007 to 2011.

TABLE 4 : TOTAL DES EVALUATIONS BY SERVICE AND FISCAL YEAR FY 2007-2012

	Army		Navy		Marine Corps		Air Force	
	Count	%	Count	%	Count	%	Count	%
2007	13,534	15.4	4,306	20.2	2,956	13.6	2,267	11.1
2008	14,182	16.1	3,908	18.3	3,086	14.2	4,034	19.8
2009	15,814	18.0	3,171	14.9	3,071	14.1	3,117	15.3
2010	14,771	16.8	3,061	14.3	3,417	15.7	3,624	17.8
2011	13,752	15.7	2,826	13.2	3,764	17.3	3,814	18.7
2012	15,801	18.0	4,077	19.1	5,484	25.2	3,509	17.2
Total	**87,854**		**21,349**		**21,778**		**20,365**	

Estimates of the rate of disability evaluation in the total military population from 2007 to 2012 are shown in Table 5 by service and demographic characteristics. Numbers from 2012 are compared to the previous five years in aggregate. Because demographic information on Air Force disability evaluation is collected from application, accession, and loss files, not available for most Air Force disability evaluations, the rates of evaluation by demographic characteristics are underestimated in the Air Force. The rate of referral for disability evaluation per 1,000 service members was highest in the Army and Marine Corps during both 2012 and the previous five years. Rates of disability evaluation in 2012 overall are similar to the previous five year period in both the Army and Air Force. The overall rate of disability evaluation in the Marine Corps and Navy increased significantly in 2012 as compared to the previous five year period. However, the largest increase in rate of disability evaluation per 1,000 service members in 2012 was observed in the Marine Corps. In all services, the rate of disability evaluation was higher in females and among enlisted and active duty service members. The rate of disability evaluation by age group varied slightly by service; in all services except Air Force and for all time periods the highest rate of evaluation was among those aged 25-29. Those reporting a race that was not black or white had the highest rate of disability.

TABLE 5: RATE OF DES EVALUATION PER 1,000 SERVICE MEMBERS BY DEMOGRAPHIC CHARACTERISTICS AND SERVICE: FY 2007-2011 VS. FY 2012*

	2007-2011								2012							
	Army		Navy		Marine Corps		Air Force†		Army		Navy		Marine Corps		Air Force†	
	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Sex																
Male	51,957	11.1	10,983	6.7	11,892	10.7	9307	4.6	11,013	11.8	2,307	7.4	3,512	15.8	1,520	3.8
Female	11,954	13.9	3,341	10.5	1,274	17.3	4291	8.5	2,191	12.7	866	13.0	360	22.8	740	7.4
Age																
<20	1,647	4.2	192	2.0	604	4.0	340	3.7	126	2.0	21	1.2	91	3.0	98	5.3
20-24	16,110	10.5	3,583	6.4	6,116	11.0	3,387	5.8	2,457	8.1	810	7.6	1,615	15.5	853	7.4
25-29	16,322	13.3	3,944	9.0	3,847	16.2	3,202	5.7	3,601	14.3	916	10.0	1,346	25.8	756	6.4
30-34	9,718	13.0	2,554	8.5	1,450	13.4	1,744	4.4	2,366	13.9	619	10.0	498	20.9	297	3.4
35-39	7,462	11.4	1,956	7.2	680	8.9	1,340	3.9	1,631	13.8	416	8.8	212	13.8	87	1.3
≥ 40	12,661	13.2	2,081	7.2	449	7.8	1,953	3.6	3,028	15.3	394	7.3	96	7.7	87	0.9
Race																
White	46,643	11.6	9,308	7.4	9,423	10.2	10,068	5.3	9,629	12.0	1,927	8.2	2,606	1.4	1,614	4.3
Black	11,785	11.6	2,572	7.3	1,074	9.1	2,051	6.0	2,275	11.1	501	7.8	263	11.0	329	4.8
Other	5,516	24.4	2,404	8.2	2,643	43.5	1,093	7.3	1,309	24.5	715	10.2	969	73.4	317	8.9
Rank																
Enlisted	59,882	12.8	13,266	8.2	12,774	12.0	14,899	7.3	12,472	13.5	2,959	9.5	3,762	17.7	3,157	7.7
Officer	4,082	4.9	1,033	3.1	354	2.9	1,660	3.5	756	4.2	207	3.1	98	3.8	253	2.7
Component																
Active Duty	47,406	17.4	13,327	8.2	12,086	12.2	14,220	8.7	10,064	18.4	2,979	9.5	3,729	18.8	2,953	9.0
Reserves	16,557	5.9	1,008	3.0	1,091	5.6	2,339	2.6	3,163	5.7	194	3.0	143	3.6	458	2.6
Total Individuals	**63,964**	**11.6**	**14,335**	**7.3**	**13,177**	**11.1**	**16,559**	**6.6**	**13,227**	**12.0**	**3,173**	**8.4**	**3,872**	**16.2**	**3,410**	**6.7**

* Data on total service population was generated using data from Defense Manpower Data Center (DMDC) queries and represents the total number of service members with each demographic as of 30 September of the fiscal year in question

† Demographic information on Air Force disability evaluations is retrieved from gain and loss records from 2001 to 2012 which are missing for many individuals evaluated for disability. Therefore, rates of disability evaluation by demographic characteristics, including sex, age, and race, are likely underestimated

Characteristics of individuals who underwent disability evaluation from 2007 to 2012 are shown in Table 6, comparing 2012 evaluations to 2007 through 2011 in aggregate. The vast majority of disability evaluations are performed on enlisted, active duty personnel, regardless of service. Army and Air Force had higher percentages of Reserve component disability evaluations, likely due to the inclusion of National Guard service members not present in the Navy and Marine Corps reserve component. In addition, most individuals evaluated for disability were male, aged 20-29 at the time of disability evaluation, and white, in all four services.

TABLE 6: DEMOGRAPHIC CHARACTERISTICS OF INDIVIDUALS EVALUATED FOR DISABILITY AT TIME OF FIRST DISABILITY EVALUATION: FY 2007-2011 VS. FY 2012

	2007-2011								2012							
	Army		Navy		Marine Corps		Air Force		Army		Navy		Marine Corps		Air Force	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Sex																
Male	51,957	81.2	10,983	76.6	11,892	90.2	9,307	56.2	11,013	83.3	2,307	72.7	3,512	90.7	1,520	44.6
Female	11,954	18.7	3,341	23.3	1,274	9.7	4,291	25.9	2,191	16.6	866	27.3	360	9.3	740	21.7
Missing	53	0.1	11	0.1	11	0.1	2,961	17.9	23	0.2	0	0.0	0	0.0	1,150	33.7
Age																
<20	1,647	2.6	192	1.3	604	4.6	337	2.0	126	1.0	21	0.7	91	2.4	98	2.9
20-24	16,110	25.2	3,583	25.0	6,116	46.4	3,390	20.5	2,457	18.6	810	25.5	1,615	41.7	853	25.0
25-29	16,322	25.5	3,944	27.5	3,847	29.2	3,202	19.3	3,601	27.2	916	28.9	1,346	34.8	756	22.2
30-34	9,718	15.2	2,554	17.8	1,450	11.0	1,744	10.5	2,366	17.9	619	19.5	498	12.9	297	8.7
35-39	7,462	11.7	1,956	13.6	680	5.2	1,340	8.1	1,631	12.3	416	13.1	212	5.5	87	2.6
≥ 40	12,661	19.8	2,081	14.5	449	3.4	1,953	11.8	3,028	22.9	394	12.4	96	2.5	87	2.6
Missing	44	0.1	25	0.2	31	0.2	4,593	27.7	18	0.1	6	0.2	14	0.4	1,232	36.1
Race																
White	46,643	72.9	9,308	64.9	9,423	71.5	10,068	60.8	9,629	72.8	1,927	60.7	2,606	67.3	1,614	47.3
Black	11,785	18.4	2,572	17.9	1,074	8.2	2,051	12.4	2,275	17.2	501	15.8	263	6.8	329	9.6
Other	5,516	8.6	2,404	16.8	2,643	20.1	1,093	6.6	1,309	9.9	715	22.5	969	25.0	317	9.3
Missing	20	<0.1	51	0.4	37	0.3	1,274	7.7	14	0.1	30	0.9	34	0.9	1,150	33.7
Rank																
Enlisted	59,882	93.6	13,266	92.5	12,774	96.9	14,899	90.0	12,472	94.3	2,959	93.3	3,762	97.2	3,157	92.6
Officer	4,082	6.4	1,033	7.2	354	2.7	1,660	10.0	756	5.7	207	6.5	98	2.5	253	7.4
Missing	0	0	36	0.3	49	0.4	0	0	0	0	7	0.2	12	0.3	0	0
Component																
Active Duty	47,406	74.1	13,327	93.0	12,086	91.7	14,220	85.9	10,064	76.1	2,979	93.9	3,729	96.3	2,952	86.6
Reserves	16,557	25.9	1,008	7.0	1,091	8.3	2,339	14.1	3,163	23.9	194	6.1	143	3.7	458	13.4
Total Individuals	**63,964**		**14,335**		**13,177**		**16,559**		**13,227**		**3,173**		**3,872**		**3,410**	

The distribution of unfitting conditions by disability body system for each service is shown in tables 7A through 7D. Classification of an individual's conditions into body system categories is not mutually exclusive and individuals may be included in more than one body system category if an individual was evaluated for more than one condition. Counts presented in each table represent the number of individuals evaluated for one or more conditions in a given body system. Percentages represent the percent of individuals among all individuals evaluated for disability that were evaluated for disability in a given body system. Because an individual can be evaluated for disabilities in more than one body system, percentages add to more than 100%. In all services, musculoskeletal conditions were the most common type of disability evaluation followed by psychiatric and neurological conditions. The proportion of individuals evaluated for disability in 2012 with musculoskeletal, psychiatric, or neurological conditions increased significantly when compared to the previous five year period in all services except the Air Force. Disability evaluations for respiratory conditions were more common in the Air Force than in other services; in 2012 11% of service members disability evaluated had a respiratory condition in the Air Force as compared to 2.5-6% in the other services.

TABLE 7A: DISTRIBUTION OF UNFITTING CONDITIONS BY BODY SYSTEM CATEGORY: ARMY, FY 2007-2011 VS. FY 2012

Body System Category	2007-2011		2012	
	Count	%	Count	%
Musculoskeletal	37,047	57.9	10,134	76.6
Psychiatric	15,390	24.1	6,401	48.4
Neurological	10,402	16.3	3,549	26.8
Respiratory	2,873	4.5	760	5.7
Digestive	1,220	1.9	379	2.9
Dermatologic	1,201	1.9	290	2.2
Cardiovascular	1,166	1.8	343	2.6
Genitourinary	825	1.3	242	1.8
Endocrine	816	1.3	329	2.5
Ears/Hearing	704	1.1	253	1.9
Eyes/Vision	689	1.1	167	1.3
Immune	251	0.4	44	0.3
Hemic/Lymphatic	231	0.4	73	0.6
Gynecologic	181	0.3	51	0.4
Dental/Oral	67	0.1	20	0.2
Other Sensory	7	<0.1	1	<0.1
Total Individuals Evaluated	**63,964**		**13,227**	

TABLE 7B: DISTRIBUTION OF UNFITTING CONDITIONS BY BODY SYSTEM CATEGORY: NAVY, FY 2007-2011 VS. FY 2012

Body System Category	2007-2011		2012	
	Count	%	Count	%
Musculoskeletal	4,172	29.1	1,297	40.9
Psychiatric	2,275	15.9	940	29.6
Neurological	2,186	15.2	635	20.0
Digestive	683	4.8	220	6.9
Respiratory	341	2.4	88	2.8
Endocrine	488	3.4	87	2.7
Cardiovascular	300	2.1	82	2.6
Genitourinary	272	1.9	68	2.1
Eyes and Vision	183	1.3	55	1.7
Dermatologic	162	1.1	47	1.5
Ears and Hearing	111	0.8	37	1.2
Infectious Disease	118	0.8	36	1.1
Hemic/Lymphatic	169	1.2	31	1.0
Gynecologic	70	0.5	39	1.2
Dental and Oral	13	0.1	3	0.1
Other Sensory Disorders	2	<0.1	1	<0.1
Total Individuals Evaluated	**14,335**		**3,173**	

TABLE 7C: DISTRIBUTION OF UNFITTING CONDITIONS BY BODY SYSTEM CATEGORY: MARINE CORPS, FY 2007-2011 VS. FY 2012

Body System Category	2007-2011 Count	2007-2011 %	2012 Count	2012 %
Musculoskeletal	5,781	43.9	2,554	66.0
Psychiatric	2,066	15.7	1,682	43.4
Neurological	2,343	17.8	1,142	29.5
Respiratory	294	2.2	151	3.9
Digestive	322	2.4	135	3.5
Genitourinary	191	1.4	91	2.4
Eyes and Vision	212	1.6	89	2.3
Dermatologic	243	1.8	79	2.0
Cardiovascular	173	1.3	76	2.0
Ears and Hearing	125	0.9	54	1.4
Endocrine	196	1.5	48	1.2
Hemic/Lymphatic	76	0.6	31	0.8
Infectious Disease	44	0.3	21	0.5
Dental and Oral	15	0.1	9	0.2
Gynecologic	22	0.2	9	0.2
Other Sensory Disorders	9	0.1	-	-
Total Individuals Evaluated	**13,177**		**3,872**	

TABLE 7D: DISTRIBUTION OF UNFITTING CONDITIONS BY BODY SYSTEM CATEGORY: AIR FORCE, FY 2007-2011 VS. FY 2012

Body System Category	2007-2011		2012	
	Count	%	Count	%
Musculoskeletal	5,541	33.5	1,537	45.1
Psychiatric	3,020	18.2	706	20.7
Neurological	2,195	13.3	582	17.1
Respiratory	1,499	9.1	390	11.4
Digestive	589	3.6	161	4.7
Cardiovascular	515	3.1	133	3.9
Genitourinary	218	1.3	71	2.1
Dermatologic	162	1.0	65	1.9
Endocrine	334	2.0	63	1.9
Eyes and Vision	155	0.9	38	1.1
Hemic/Lymphatic	121	0.7	33	1.0
Ears and Hearing	132	0.8	30	0.9
Infectious Disease	-	0.0	24	0.7
Dental and Oral	15	0.1	8	0.2
Other Sensory	1	<0.1	1	<0.1
Gynecologic	69	0.4	-	0.0
Total Individuals Evaluated	**16,559**		**3,410**	

The leading VASRD categories (excluding analogous codes) that contributed to disability evaluations in the most common body system categories from 2007 to 2012, musculoskeletal, psychiatric and neurological conditions, are show in tables 8A through 8D. Classification of an individual's conditions into body system categories is not mutually exclusive and individuals may be included in more than one body system category in cases of multiple conditions. Like the body system categories, VASRD categories within a body system are not mutually exclusive and an individual is represented in multiple VASRD categories if he/she has more than one code. Therefore, percentages associated with VASRD categories within each body system can be interpreted as the percent of individuals in a VASRD category among all individuals with a condition in the body system.

Among musculoskeletal conditions, dorsopathies were the most common musculoskeletal condition type in 2012 in the Army and Air Force. In the Navy Marine Corps, limitation of motion was the most common musculoskeletal condition in 2012. Dorsopathies have also increased in prevalence in the Army and Air Force in 2012 relative to previous years, while limitation of motion has increased in prevalence in the Navy and Marine Corps relative to the previous five year period. Posttraumatic stress disorder was the most commonly diagnosed psychiatric condition among in Army, Navy, and Marine Corps service members evaluated for disability in 2012 and second most common psychiatric disability in the Air Force. Posttraumatic stress disorder has increased markedly in prevalence in all services. In the Air Force, mood disorders were more common in psychiatric disability cases than posttraumatic stress disorder and the prevalence of mood disorder is similar when comparing 2012 to the previous five year period. Among neurological conditions, residuals of traumatic brain injury were the most common condition types in the Army and Marine Corps in 2012. In 2012, the proportion of traumatic brain injury among of Marine Corps neurological cases increased relative to the previous five years while Army cases of traumatic brain injury remained stable in 2012 as compared to previous years. Paralysis was the most common neurological condition in the Navy and Air Force throughout the period from 2007-2012.

TABLE 8A: MOST PREVALENT CONDITIONS WITHIN LEADING BODY SYSTEM CATEGORIES: ARMY, 2007-2011 VS. 2012

2007-2011			2012		
	Count	%		Count	%
Musculoskeletal	**37,047**	**57.9**	**Musculoskeletal**	**10,134**	**76.6**
Dorsopathies	18,146	49.0	Dorsopathies	5,847	57.7
Arthritis	12,680	34.2	Limitation of motion	4,069	40.2
Limitation of motion	7,497	20.2	Arthritis	1,909	18.8
Psychiatric	**15,390**	**24.1**	**Psychiatric**	**6,401**	**48.4**
Posttraumatic stress disorder	9,398	61.1	Posttraumatic stress disorder	4,630	72.3
Mood disorder	3,554	23.1	Mood disorder	1,374	21.5
Anxiety disorder	1,370	8.9	Anxiety disorder	605	9.5
Neurological	**10,402**	**16.3**	**Neurological**	**3,549**	**26.8**
Residuals of traumatic brain injury	2,842	27.3	Residuals of traumatic brain injury	1,005	28.3
Paralysis	2,786	26.8	Migraine	988	27.1
Migraine	1,892	18.2	Paralysis	961	27.8
Total Individuals Evaluated	**63,964**		**Total Individuals Evaluated**	**13,227**	

TABLE 8B: MOST PREVALENT CONDITIONS WITHIN LEADING BODY SYSTEM CATEGORIES: NAVY, FY 2007-2011 VS. FY 2012

2007-2011			2012		
	Count	%		Count	%
Musculoskeletal	**4,172**	**29.1**	**Musculoskeletal**	**1,297**	**40.9**
Dorsopathies	1,457	34.9	Limitation of motion	621	47.9
Arthritis	1,296	31.1	Dorsopathies	462	35.6
Limitation of motion	1,018	24.4	Arthritis	278	21.4
Psychiatric	**2,275**	**15.9**	**Psychiatric**	**940**	**29.6**
Mood disorder	1,136	49.9	Posttraumatic stress disorder	465	49.5
Posttraumatic stress disorder	424	18.6	Mood disorder	363	38.6
Dementia	193	8.5	Anxiety disorder	102	10.9
Neurological	**2,186**	**15.2**	**Neurological**	**635**	**20.0**
Epilepsy	543	24.8	Paralysis	157	24.7
Paralysis	512	23.4	Epilepsy	140	22.0
Migraine	279	12.8	Migraine	78	12.3
Total Individuals Evaluated	**14,335**		**Total Individuals Evaluated**	**3,173**	

TABLE 8C: MOST PREVALENT CONDITIONS WITHIN LEADING BODY SYSTEM CATEGORIES: MARINE CORPS, FY 2007-2011 VS. FY 2012

2007-2011			2012		
	Count	%		Count	%
Musculoskeletal	**5,781**	**43.9**	**Musculoskeletal**	**2,554**	**66.0**
Limitation of motion	1,892	32.7	Limitation of motion	1,323	51.8
Arthritis	1,866	32.3	Dorsopathies	792	31.0
Dorsopathies	1,420	24.6	Arthritis	378	14.8
Psychiatric	**2,066**	**15.7**	**Psychiatric**	**1,682**	**43.4**
Posttraumatic stress disorder	1,014	49.1	Posttraumatic stress disorder	1,360	80.9
Mood disorder	535	25.9	Mood disorder	307	18.3
Dementia	312	15.1	Anxiety disorder	77	4.6
Neurological	**2,343**	**17.8**	**Neurological**	**1,142**	**29.5**
Paralysis	692	29.5	Residuals of traumatic brain injury	416	36.4
Residuals of traumatic brain injury	661	28.2	Paralysis	264	23.1
Epilepsy	389	16.6	Epilepsy	154	13.5
Total Individuals Evaluated	**13,177**		**Total Individuals Evaluated**	**3,872**	

TABLE 8D: MOST PREVALENT CONDITIONS WITHIN LEADING BODY SYSTEM CATEGORIES: AIR FORCE, FY 2007-2011 VS. FY 2012

2007-2011			2012		
	Count	%		Count	%
Musculoskeletal	**5,541**	**33.5**	**Musculoskeletal**	**1,537**	**45.1**
Dorsopathies	2,858	51.6	Dorsopathies	828	53.9
Arthritis	1,321	23.8	Limitation of motion	546	35.5
Limitation of motion	956	17.3	Arthritis	305	19.8
Psychiatric	**3,020**	**18.2**	**Psychiatric**	**706**	**20.7**
Mood disorder	1,483	49.1	Mood disorder	343	48.6
Posttraumatic stress disorder	806	26.7	Posttraumatic stress disorder	275	39.0
Anxiety disorder	396	13.1	Anxiety disorder	106	15.0
Neurological	**2,195**	**13.3**	**Neurological**	**582**	**17.1**
Paralysis	530	24.1	Paralysis	139	23.9
Migraine	478	21.8	Migraine	133	22.9
Epilepsy	349	15.9	Epilepsy	85	14.6
Total Individuals Evaluated	**16,559**		**Total Individuals Evaluated**	**3,410**	

Tables 9A through 9D show the top ten most common VASRD condition categories present in service members evaluated for disability for 2007-2011 as compared to 2012 for the Army (Table 9A), Navy (Table 9B), Marine Corps (Table 9C), and Air Force (Table 9D). In the Army the leading VASRD condition category in 2012 was dorsopathies, followed by posttraumatic stress disorder and limitation of motion. Substantially more individuals were evaluated for dorsopathy disability in the Army in 2012 as compared to the previous five years. PTSD was also much more prevalent among Soldiers evaluated for disability in 2012 as compared to previous years. Limitation of motion was the most common condition category in 2012 in the Navy followed by PTSD and dorsopathies. The prevalence of limitation of motion and nearly doubled in 2012 relative the previous five years in the Navy; PTSD prevalence in 2012 was more than six times the prevalence in the previous five year period. Among those evaluated for disability in the Marine Corps PTSD was the most common VASRD condition type in 2012, increasing substantially as compared to the previous five year period. Limitation of motion was second most common in 2012 and also showed a marked increase in prevalence as compared to previous years. In the Air Force dorsopathies were the most common disability condition in 2012, as in previous years. A larger percentage of Air Force disabilities were due dorsopathies in 2012. The second most common condition in 2012, limitation of motion, also increased in prevalence in the Air Force relative to the previous five year period.

TABLE 9A: TEN MOST COMMON VASRD CONDITION CATEGORIES: ARMY, FY 2007-2011 VS. FY 2012

2007-2011			2012		
	Count	%		Count	%
Dorsopathies	18,146	28.4	Dorsopathies	5,847	44.2
Arthritis	12,680	19.8	Posttraumatic stress disorder	4,630	35.0
Posttraumatic stress disorder	9,398	14.7	Limitation of motion	4,069	30.8
Limitation of motion	7,497	11.7	Arthritis	1,909	14.4
Mood Disorder	3,554	5.6	Mood disorder	1,374	10.4
Residuals of traumatic brain injury	2,842	4.4	Joint disorders or inflammation	1,159	8.8
Paralysis	2,788	4.4	Residuals of traumatic brain injury	1,005	7.6
Skeletal and joint deformities	2,585	4.0	Migraine	988	7.5
Joint disorders or inflammation	2,348	3.7	Paralysis	962	7.3
Migraine	1,892	3.0	Skeletal and joint deformities	690	5.2
Total Individuals	**63,964**		**Total Individuals**	**13,227**	

TABLE 9B: TEN MOST COMMON VASRD CONDITION CATEGORIES: NAVY, FY 2007-2011 VS. FY 2012

2007-2011			2012		
	Count	%		Count	%
Dorsopathies	1,457	10.2	Limitation of motion	615	19.4
Arthritis	1,296	9.0	Posttraumatic stress disorder	465	14.7
Mood disorder	1,136	7.9	Dorsopathies	462	14.6
Limitation of motion	1,017	7.1	Mood disorder	363	11.4
Epilepsy	543	3.8	Arthritis	278	8.8
Paralysis	512	3.6	Joint disorders or inflammation	161	5.1
Noninfectious enteritis and colitis	449	3.1	Paralysis	157	4.9
Diabetes mellitus	434	3.0	Noninfectious enteritis and colitis	152	4.8
Posttraumatic stress disorder	424	3.0	Epilepsy	140	4.4
Joint disorders or inflammation	376	2.6	Anxiety disorder	102	3.2
Total Individuals	**14,335**		**Total Individuals**	**3,173**	

TABLE 9C: TEN MOST COMMON VASRD CATEGORIES: MARINE CORPS, FY 2007-2011 VS. FY 2012

2007-2011			2012		
	Count	%		Count	%
Limitation of motion	1,887	14.3	Posttraumatic stress disorder	1,360	35.1
Arthritis	1,866	14.2	Limitation of motion	1,316	34.0
Dorsopathies	1,420	10.8	Dorsopathies	792	20.5
Posttraumatic stress disorder	1,014	7.7	Residuals of traumatic brain injury	416	10.7
Paralysis	692	5.3	Arthritis	378	9.8
Residuals of traumatic brain injury	661	5.0	Mood disorder	307	7.9
Mood disorder	535	4.1	Paralysis	263	6.8
Joint disorders or inflammation	480	3.6	Amputations	246	6.4
Epilepsy	389	3.0	Joint disorders or inflammation	186	4.8
Skeletal and joint deformities	346	2.6	Epilepsy	154	4.0
Total Individuals	**13,177**		**Total Individuals**	**3,872**	

TABLE 9D: TEN MOST COMMON VASRD CATEGORIES: AIR FORCE, FY 2007-2011 VS. FY 2012

2007-2011			2012		
	Count	%		Count	%
Dorsopathies	2,858	17.3	Dorsopathies	828	24.3
Mood disorder	1,483	9.0	Limitation of motion	546	16.0
Arthritis	1,321	8.0	Mood disorder	343	10.1
Asthma	1,118	6.8	Arthritis	305	8.9
Limitation of motion	956	5.8	Asthma	289	8.5
Posttraumatic stress disorder	806	4.9	Posttraumatic stress disorder	275	8.1
Paralysis	531	3.2	Joint disorders or inflammation	230	6.7
Migraine	478	2.9	Paralysis	139	4.1
Joint disorders or inflammation	449	2.7	Migraine	133	3.9
Limitation of motion of muscles	400	2.4	Anxiety disorder	106	3.1
Total Individuals	**16,559**		**Total Individuals**	**3,410**	

Table 10 shows the distribution of the last disposition by service for all disability discharge evaluations comparing 2012 to 2007-2011, excluding periodic TDRL re-evaluations in all services. When considering the last disposition for all disability evaluations, the most common disposition in the Army and Air Force in 2012. In the Navy and Marine Corps, a slightly higher percentage of disability evaluated individuals were placed on the TDRL than separated with severance in 2012 and the proportion of Navy and Marine Corps disability evaluations that resulted in dispositions of placement on the TDRL increased in 2012 relative to the previous five years. Placement on the TDRL was the second most common disposition following disability evaluation in the Army and Air Force. Fit determinations were most common in the Navy in 2012 and permanent disability retirement was most common in the Army and Air Force. Compared to the previous five year period permanent disability retirement has increased in both the Army and the Air Force.

TABLE 10: MOST RECENT DISPOSITION BY SERVICE FOR ALL INDIVIDUALS EVALUATED FOR DISABILITY DISCHARGE: FY 2007-2011 VS FY 2012*

	2007-2011								2012							
	Army		Navy		Marine Corps		Air Force		Army		Navy		Marine Corps		Air Force	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Permanent Disability Retired	9,750	16.4	1,893	14.1	1,608	12.7	3,095	18.7	4,573	34.7	249	7.8	384	9.9	1,297	38.0
Separated without Benefit	1,159	2.0	499	3.7	495	3.9	617	3.7	57	0.4	86	2.7	90	2.3	121	3.5
Separated with Severance	22,943	38.7	3,555	26.5	4,757	37.6	4,262	25.7	3,840	29.2	858	27.0	1,505	38.9	1,015	29.8
Fit	4,390	7.4	3,067	22.9	1,319	10.4	4,581	27.7	314	2.4	621	19.6	241	6.2	487	14.3
Placed on TDRL	15,645	26.4	3,483	26.0	3,767	29.8	4,293	25.9	3,413	25.9	1,193	37.6	1,558	40.3	589	17.3
Administrative Termination	1,937	3.3	-	-	-	-	-	0.0	322	2.4	-	-	-	-	-	0.0
Other†	3,531	5.9	904	6.7	693	5.5	8	<0.1	650	4.9	166	5.2	92	2.4	-	0.0
Total Individuals	**59,355**		**13,401**		**12,639**		**16,559**		**13,169**		**3,173**		**3,870**		**3,410**	

* Individuals with a 'Retained on the TDRL' disposition as their first disposition during the time period covered by this report are excluded from this table.

† Including, but not limited, individuals with dispositions of no action, limited duty, or administrative removal from TDRL

Most recent percent rating among evaluations for disability discharge is shown by service for the period for 2012 as compared 2007-2011 for all services in Table 11. In 2012, the most frequently assigned rating was 10%, similar to the previous five year period. Marine Corps disability evaluations most frequently resulted in a rating of 100% when compared to other services. Relative to the period from 2007 to 2011, a larger percent of disability evaluations resulted in ratings of 100% in 2012. Disability ratings greater than 30% accounted for about 60% of Army disability ratings, 45% of Navy ratings, and 50% of Marine Corps and Air Force ratings. In the Army and Air Force, the proportion of disability evaluations resulting in ratings of 30% or higher increased in 2012 relative to the previous five year period. Decreases in the proportion of ratings in excess of 30% were observed in both the Navy and Marine Corps in 2012 as compared to previous years. A significant decrease in the proportion of Marine Corps and Air Force disability evaluations that were unrated was observed in 2012 relative to the period from 2007 to 2011.

TABLE 11: LATEST PERCENT RATING BY SERVICE FOR ALL INDIVIDUALS EVALUATED FOR DISABILITY DISCHARGE: FY 2007-2011 VS FY 2012*

	2007-2011												2012											
	Army			Navy			Marine Corps			Air Force			Army			Navy			Marine Corps			Air Force		
	n	%	CP	n	%	CP	n	%	CP	n	%	CP	n	%	CP	n	%	CP	n	%	CP	n	%	CP
UR	5,554	9.4	N/A	3,565	26.6	N/A	1,812	14.3	N/A	4,597	27.8	N/A	369	2.8	N/A	705	22.2	N/A	331	8.6	N/A	619	18.2	N/A
0	3,509	5.9	7.1	390	2.9	4.1	519	4.1	5.0	256	1.5	2.1	309	2.3	2.6	144	4.5	6.0	238	6.1	6.8	0	0.0	0.0
10	13,075	22.0	33.3	2,147	16.0	27.0	2,979	23.6	33.4	2,894	17.5	25.7	2,128	16.2	20.2	439	13.8	24.3	826	21.3	30.2	597	17.5	20.7
20	7,541	12.7	48.5	1,146	8.6	39.2	1,325	10.5	46.1	1,838	11.1	40.8	1,617	12.3	33.5	334	10.5	38.3	489	12.6	44.1	397	11.6	34.4
30	6,020	10.1	60.6	2,377	17.7	64.4	2,154	17.0	66.7	2,551	15.4	61.6	1,227	9.3	43.7	345	10.9	52.7	343	8.9	53.9	476	14.0	50.9
40	4,112	6.9	68.9	1,355	10.1	78.9	1,172	9.3	77.8	1,457	8.8	73.5	1,055	8.0	52.4	264	8.3	63.7	329	8.5	63.2	308	9.0	61.5
50	4,533	7.6	78.0	708	5.3	86.4	837	6.6	85.8	1,374	8.3	84.7	1,363	10.4	63.7	359	11.3	78.7	407	10.5	74.8	350	10.3	73.6
60	4,410	7.4	86.9	383	2.9	90.5	502	4.0	90.6	739	4.5	90.8	1,548	11.8	76.5	129	4.1	84.1	205	5.3	80.6	223	6.5	81.3
70	2,850	4.8	92.6	211	1.6	92.7	397	3.1	94.4	408	2.5	94.1	1,213	9.2	86.5	183	5.8	91.7	328	8.5	89.9	232	6.8	89.4
80	1,634	2.8	95.9	84	0.6	93.6	156	1.2	95.9	158	1.0	95.4	771	5.9	92.9	51	1.6	93.8	105	2.7	92.9	126	3.7	93.7
90	734	1.2	97.3	39	0.3	94.0	58	0.5	96.5	34	0.2	95.7	373	2.8	96.0	8	0.3	94.2	36	0.9	93.9	24	0.7	94.6
100	1,319	2.2	100	563	4.2	100	369	2.9	100	530	3.2	100	484	3.7	100	140	4.4	100	214	5.5	100	157	4.6	100
Miss	4,064	6.8	N/A	433	3.2	N/A	359	2.8	N/A	20	0.1	N/A	712	5.4	N/A	72	2.3	N/A	19	0.5	N/A	0	0.0	N/A
Total	59,335			13,401			12,639			16,559			13,169			3,173			3,870			3,410		

UR: Unrated, Miss: Missing, CP: Cumulative Percent, excluding missing and unrated

* Individuals with a 'Retained on the TDRL' disposition as their first disposition during the time period covered by this report are excluded from this table

History of medical disqualification, pre-existing conditions, accession medical waiver, and hospitalization among service members evaluated for disability

Table 12 shows the number and percentages of individuals in the DES records with records in other datasets collected by AMSARA. Applicant and waiver data are for enlisted active duty and reserve service members; hospitalization data were only available for active duty and eligible reserves at the time these analyses were completed. Accession and discharge data were available for all ranks and components. Regardless of service, the majority of those who were evaluated for disability had a discharge record. Applicant records were also available for the majority in all services though not with the prevalence of loss records. Accession records are available for the majority of individuals evaluated for disability. However, the percentage of individuals with an accession record is lower in the Army and Air Force than in the Navy and Marine Corps. Missing applicant data may represent applications prior to 2001, the first year complete data are available. Similarly, in the case of accession data, missing data may represent accessions prior to 2000.

The highest percentage of individuals evaluated for disabilities with waiver records from any waiver authority was found in the Army (7%). Most accession medical waiver records for individuals evaluated for disability were approved regardless of service. Hospitalization at a military treatment facility was least common in Air Force members evaluated for disability. In Army, Navy, and Marine Corps members evaluated for disability hospitalization rates were similar.

TABLE 12: INDIVIDUALS EVALUATED FOR DISABILITY WITH RECORDS IN OTHER AMSARA DATA SOURCES: FY 2007-FY 2012

	Army		Navy		Marine Corps		Air Force	
	Count	%	Count	%	Count	%	Count	%
Applicant record* (2001-2012)	47,915	66.2	8,717	53.7	12,994	78.6	9,209	51.0
Accession medical waiver record* (1995-2012)	4,894	6.8	800	4.9	925	5.6	442	2.4
Approved	4,537	6.3	744	4.6	838	5.1	422	2.3
Denied	357	0.5	56	0.3	87	0.5	20	0.1
Accession record (2000-2012)	53,060	68.7	15,159	86.6	15,844	92.9	10,274	51.4
Hospitalization record† (2000-2012)	20,279	35.3	5,947	36.5	5,846	37.0	3,758	21.9
Discharge record (2000-2012)	63,076	81.7	12,260	70.0	12,531	73.5	14,503	72.6
Total Individuals	77,191		17,508		17,049		19,969	
Total Enlisted	72,350		16,223		16,536		18,060	
Total Active Duty	57,476		16,310		15,816		17,171	

*. Applicant and waiver datasets include only enlisted service members.
†. Hospitalization dataset (i.e. SIDR) includes active duty service members and qualified reserves.

Medical Disqualification and Pre-existing Conditions

AMSARA enlisted applicant records include data on medical examinations conducted at a Military Entrance Processing Station (MEPS) from 2001 to present. MEPS medical examinations dated after the MEB date were excluded from the analyses. In cases where service members evaluated for disability had more than one MEPS medical examination record, only the most recent record preceding the disability evaluation was used.

Table 13 shows the history of medical examination and application for military service among service members evaluated for disability by year of disability evaluation and service. There is a general trend in all services of increasing proportions of applicant records with increasing year of disability, a trend which is expected given the time frame for which application records are available. Overall, the Marine Corps had the highest percentage of individuals evaluated for disability who also had a MEPS medical examination record for each year of disability evaluation.

TABLE 13: RECORD OF MEDICAL EXAMINATION AT MEPS AMONG ENLISTED SERVICE MEMBERS EVALUATED FOR DISABILITY BY YEAR OF DISABILITY EVALUATION: FY 2008-FY 2012

	Army			Navy			Marine Corps			Air Force		
	App	Total	%	App	Total	%	App	Total	%	App[2]	Total[3]	%
2008	5,673	9,994	56.8	1,040	2,721	38.2	1,141	1,748	65.3	877	2,023	43.4
2008	6,685	10,551	63.4	1,181	2,583	45.7	1,382	1,954	70.7	1,475	3,580	41.2
2008	7,971	11,989	66.5	1,113	2,217	50.2	1,516	1,966	77.1	1,235	27,30	45.2
2011	8,418	12,446	67.6	1,464	2,503	58.5	1,950	2,506	77.8	1,696	3,191	53.1
2011	8,744	12,512	69.9	1,492	2,519	59.2	2,656	3,244	81.9	1,964	3,379	58.1
2012	10,424	14,858	70.2	2,427	3,680	66.0	4,349	5,118	85.0	1,962	3,157	62.1
Total	47,915	72,350	66.2	8,717	16,223	53.7	12,994	16,536	78.6	9209	18,060	51.0

App: Applicants with MEPS medical examination record, Total: Enlisted individuals evaluated for a disability.

Medical qualification status at time of application for service for enlisted service members who underwent disability evaluation are shown in Tables 14A-14D comparing service members evaluated for disability in 2012 to those evaluated for disability in the previous five years. The rates of permanent accession medical disqualification were similar across services for both time periods. Approximately 8-12% of service members evaluated for disability had a history of permanent accession medical disqualification. Lowest rates of history of temporary accession medical disqualification were found in Air Force where less than 5% of cases with medical exam record had a temporary disqualification; highest rates were found in the Army where approximately 12% of individuals evaluated for disability in 2012 had a history of temporary disqualification.

TABLE 14A: MEDICAL QUALIFICATION STATUS AMONG ENLISTED INDIVIDUALS WHO WERE EVALUATED FOR DISABILITY WITH MEPS EXAMINATION RECORD: ARMY, FY 2007-2011 VS. FY 2012

	2007-2011		2012	
	Count	%	Count	%
Fully Qualified	29,137	77.7	8,141	78.1
Permanently Disqualified	4,490	12.0	1,239	11.9
Temporarily Disqualified*	3,864	10.3	1,044	10.0
Total DES Cases with Medical Exam Record	**37,491**		**10,424**	

*The majority of temporary disqualifications are due to failure to meet weight for height and body fat standards.

TABLE 14B: MEDICAL QUALIFICATION STATUS AMONG ENLISTED INDIVIDUALS WHO WERE EVALUATED FOR DISABILITY WITH MEPS EXAMINATION RECORD: NAVY, FY 2007-2011 VS. FY 2012

	2007-2011		2012	
	Count	%	Count	%
Fully Qualified	5,231	83.2	2,025	83.4
Permanently Disqualified	637	10.1	245	10.1
Temporarily Disqualified*	422	6.7	157	6.5
Total DES Cases with Medical Exam Record	**6,290**		**2,427**	

*The majority of temporary disqualifications are due to failure to meet weight for height and body fat standards.

TABLE 14C: MEDICAL QUALIFICATION STATUS AMONG ENLISTED INDIVIDUALS WHO WERE EVALUATED FOR DISABILITY WITH MEPS EXAMINATION RECORD: MARINE CORPS, FY 2007-2011 VS. FY 2012

	2007-2011		2012	
	Count	%	Count	%
Fully Qualified	7,122	82.4	3,699	85.1
Permanently Disqualified	856	9.9	356	8.2
Temporarily Disqualified*	667	7.7	294	6.8
Total DES Cases with Medical Exam Record	**8,645**		**4,349**	

*The majority of temporary disqualifications are due to failure to meet weight for height and body fat standards.

TABLE 14D: MEDICAL QUALIFICATION STATUS AMONG ENLISTED INDIVIDUALS WHO WERE EVALUATED FOR DISABILITY WITH MEPS EXAMINATION RECORD: AIR FORCE, FY 2008-2011 VS. FY 2012

	2008-2011		2012	
	Count	%	Count	%
Fully Qualified	6,433	88.8	1,723	87.8
Permanently Disqualified	486	6.7	151	7.7
Temporarily Disqualified*	328	4.5	88	4.5
Total DES Cases with Medical Exam Record	**7,247**		**1,962**	

*The majority of temporary disqualifications are due to failure to meet weight for height and body fat standards.

The leading ICD-9 diagnoses present in MEPS examination records of enlisted service members by year of disability evaluation are shown in Table 15A-Table 15D ICD-9 codes present in records of MEPS examination represent the presence of pre-existing conditions in applicants. All ICD-9 diagnoses present in the most recent medical examination record that preceded disability evaluation were used in the generation of Table 15A-Table 15D.

In all services and for all time periods, the conditions noted in the applicant files of service members who underwent disability are consistent with highly prevalent conditions in the general military applicant population [8]. In all services except the Air Force, overweight, obesity, and other hyperalimentation was the most common condition noted at MEPS examination in 2012 and in the previous five year period. *Cannabis* abuse was also common in the Army, Navy, and Marine Corps. Abnormal loss of weight or underweight, hearing loss, and disorders of refraction and accommodation were also among the leading ICD-9 codes in all services.

TABLE 15A: FIVE MOST COMMON ICD-9 DIAGNOSIS CODES APPEARING IN MEPS MEDICAL EXAMINATION RECORDS OF SERVICE MEMBERS EVALUATED FOR DISABILITY: ARMY, FY 2007-2011 VS. FY 2012

2007-2011				2012			
ICD-9 Diagnosis Code	Count	% of Cond*	% of App†	ICD-9 Diagnosis Code	Count	% of Cond*	% of App†
Overweight, obesity and other hyperalimentation	2,447	33.9	6.5	Overweight, obesity and other hyperalimentation	668	31.6	6.4
Hearing loss	446	6.2	1.2	Disorders of lipoid metabolism	156	7.4	1.5
Cannabis abuse	445	6.2	1.2	Hearing loss	153	7.2	1.5
Disorders of refraction and accommodation	290	4.0	0.8	*Cannabis* abuse	126	6.0	1.2
Disorders of lipoid metabolism	234	3.2	0.6	Disorders of refraction and accommodation	65	3.1	0.6
Total Applicants with Medical Conditions	7,210		19.2	**Total Applicants with Medical Conditions**	2,114		20.3
Total DES Cases with Medical Exam Record	37,491			**Total DES Cases with Medical Exam Record**	10,424		

*. Percent of applicants with each medical condition among all applicants with medical conditions.
†. Percent of applicants with each medical condition among all DES cases with a medical exam record.

TABLE 15B: FIVE MOST COMMON ICD-9 DIAGNOSIS CODES APPEARING IN MEPS MEDICAL EXAMINATION RECORDS OF SERVICE MEMBERS EVALUATED FOR DISABILITY: NAVY, FY 2007-2011 VS. FY 2012

2007-2011				2012			
ICD-9 Diagnosis Code	Count	% of Cond*	% of App†	ICD-9 Diagnosis Code	Count	% of Cond*	% of App†
Overweight, obesity and other hyperalimentation	247	23.2	3.9	Overweight, obesity and other hyperalimentation	98	21.0	4.0
Cannabis abuse	49	4.6	0.8	Disorders of refraction and accommodation	21	4.5	0.9
Disorders of refraction and accommodation	44	4.1	0.7	Asthma	20	4.3	0.8
Asthma	44	4.1	0.7	Other and unspecified disorders of bone and cartilage	17	3.6	0.7
Other and unspecified disorders of bone and cartilage	36	3.4	0.6	*Cannabis* abuse	15	3.2	0.6
Total Applicants with Medical Conditions	1,063		**16.9**	**Total Applicants with Medical Conditions**	466		**19.2**
Total DES Cases with Medical Exam Record	6,290			**Total DES Cases with Medical Exam Record**	2,427		

*. Percent of applicants with each medical condition among all applicants with medical conditions.
†. Percent of applicants with each medical condition among all DES cases with a medical exam record.

TABLE 15C: FIVE MOST COMMON ICD-9 DIAGNOSIS CODES APPEARING IN MEPS MEDICAL EXAMINATION RECORDS OF SERVICE MEMBERS EVALUATED FOR DISABILITY: MARINE CORPS, FY 2007-2011 VS. FY 2012

2007-2011				2012			
ICD-9 Diagnosis Code	Count	% of Cond*	% of App†	ICD-9 Diagnosis Code	Count	% of Cond*	% of App†
Overweight, obesity and other hyperalimentation	353	23.1	4.1	Overweight, obesity and other hyperalimentation	150	21.2	3.4
Cannabis abuse	124	8.1	1.4	*Cannabis* abuse	59	8.3	1.4
Abnormal loss of weight and underweight	73	4.8	0.8	Abnormal loss of weight and underweight	42	5.9	1.0
Disorders of refraction and accommodation	65	4.3	0.8	Asthma	25	3.5	0.6
Other and unspecified disorders of bone and cartilage	58	3.8	0.7	Other and unspecified disorders of bone and cartilage	24	3.4	0.6
Total Applicants with Medical Conditions	1,527		17.7	**Total Applicants with Medical Conditions**	708		16.3
Total DES Cases with Medical Exam Record	8,645			**Total DES Cases with Medical Exam Record**	4,349		

*. Percent of applicants with each medical condition among all applicants with medical conditions.
†. Percent of applicants with each medical condition among all DES cases with a medical exam record.

TABLE 15D: FIVE MOST COMMON ICD-9 DIAGNOSIS CODES APPEARING IN MEPS MEDICAL EXAMINATION RECORDS OF SERVICE MEMBERS EVALUATED FOR DISABILITY: AIR FORCE, FY 2008-2011 VS. FY 2012

2008-2011				2012			
ICD-9 Diagnosis Code	Count	% of Cond*	% of App†	ICD-9 Diagnosis Code	Count	% of Cond*	% of App†
Disorders of refraction and accommodation	40	5.5	0.6	Disorders of refraction and accommodation	13	5.7	0.7
Overweight, obesity and other hyperalimentation	33	4.5	0.5	Asthma	8	3.5	0.4
Asthma	27	3.7	0.4	Other nonspecific abnormal findings	8	3.5	0.4
Other disorders of bone and cartilage	26	3.6	0.4	Other disorders of bone and cartilage	7	3.1	0.4
Hyperkinetic syndrome of childhood	21	2.9	0.3	Essential hypertension	6	2.6	0.3
Total Applicants with Medical Conditions	732		10.1	**Total Applicants with Medical Conditions**	229		11.7
Total DES Cases with Medical Exam Record	7,247			**Total DES Cases with Medical Exam Record**	1,962		

*. Percent of applicants with each medical condition among all applicants with medical conditions.
†. Percent of applicants with each medical condition among all DES cases with a medical exam record.

Leading objective medical findings (OMF) conditions that appeared in MEPS records of enlisted service members evaluated for disability are shown by service and year of disability evaluation in Tables 17A-17D comparing 2012 disability evaluations to 2007-2011 evaluations. OMF conditions present in records of MEPS examination represent the presence of pre-existing conditions in applicants. All OMF present in the most recent medical examination record that preceded disability evaluation were used in the generation of Table 17A-Table 17D. The most common OMF conditions present at time of MEPS medical examination were those for weight and body build across all services and years. Lower extremity conditions and positive *Cannabis* tests were also among the most common conditions across all services and years. When compared to the general applicant population [8], lower extremity conditions have higher rates among service members evaluated for disability across all services

TABLE 16A: FIVE MOST COMMON OMF CODES APPEARING IN MEPS MEDICAL EXAMINATION RECORDS OF SERVICE MEMBERS EVALUATED FOR DISABILITY: ARMY, FY 2007-2011 VS. FY 2012

2007-2011				2012			
OMF Code	Count	% of Cond*	% of App†	OMF Code	Count	% of Cond*[1]	% of App†
Weight, body build	2,907	34.7	7.8	Weight, body build	792	34.5	7.6
Lower extremities (except feet)	855	10.2	2.3	Body fat percentage	177	7.7	1.7
Body fat percentage	533	6.4	1.4	Hearing	165	7.2	1.6
Cannabis test positive	523	6.2	1.4	*Cannabis* test positive	146	6.4	1.4
Upper extremities	519	6.2	1.4	Lower extremities (except feet)	141	6.1	1.4
Total Applicants with OMF Codes	8,386		22.4	**Total Applicants with OMF Codes**	2,297		22.0
Total DES with Applications	37,491			**Total DES with Applications**	10,424		

OMF: Objective Medical Finding
*. Percent of applicants with each medical condition among all applicants with medical conditions.
†. Percent of applicants with each medical condition among all DES cases with a medical exam record.

TABLE 16B: FIVE MOST COMMON OMF CODES APPEARING IN MEPS MEDICAL EXAMINATION RECORDS OF SERVICE MEMBERS EVALUATED FOR DISABILITY: NAVY, FY 2007-2011 VS. FY 2012

2007-2011				2012			
OMF Code	Count	% of Cond*	% of App†	OMF Code	Count	% of Cond*	% of App†
Weight, body build	292	23.2	4.6	Weight, body build	111	23.3	4.6
Lower extremities (except feet)	128	10.2	2.0	Lower extremities (except feet)	41	8.6	1.7
Upper extremities	87	6.9	1.4	Lungs and chest (includes breast)	33	6.9	1.4
Psychiatric	66	5.2	1.0	Skin, lymphatic, allergies	22	4.6	0.9
Lungs and chest (includes breast)	59	4.7	0.9	Refraction	20	4.2	0.8
Total Applicants with OMF Codes	1,260		20.0	**Total Applicants with OMF Codes**	477		19.7
Total DES with Applications	6,290			**Total DES with Applications**	2,427		

OMF: Objective Medical Finding
*. Percent of applicants with each medical condition among all applicants with medical conditions.
†. Percent of applicants with each medical condition among all DES cases with a medical exam record.

TABLE 16C: FIVE MOST COMMON OMF CODES APPEARING IN MEPS MEDICAL EXAMINATION RECORDS OF SERVICE MEMBERS EVALUATED FOR DISABILITY: MARINE CORPS, FY 2007-2011 VS. FY 2012

2007-2011				2012			
OMF Code	Count	% of Cond*	% of App†	OMF Code	Count	% of Cond*	% of App†
Weight, body build	471	26.1	5.4	Weight, body build	210	27.7	4.8
Lower extremities (except feet)	199	11.0	2.3	*Cannabis* test positive	65	8.6	1.5
Upper extremities	140	7.8	1.6	Lower extremities (except feet)	51	6.7	1.2
Cannabis test positive	134	7.4	1.6	Psychiatric	46	6.1	1.1
Psychiatric	104	5.8	1.2	Skin, lymphatic, allergies	39	5.2	0.9
Total Applicants with OMF Codes	1,802		20.8	**Total Applicants with OMF Codes**	757		17.4
Total DES with Applications	8,645			**Total DES with Applications**	4,349		

OMF: Objective Medical Finding
*. Percent of applicants with each medical condition among all applicants with medical conditions.
†. Percent of applicants with each medical condition among all DES cases with a medical exam record.

TABLE 16D: FIVE MOST COMMON OMF CODES APPEARING IN MEPS MEDICAL EXAMINATION RECORDS OF SERVICE MEMBERS EVALUATED FOR DISABILITY: AIR FORCE, FY 2007-2011 VS. FY 2012

2007-2011				2012			
OMF[1] Code	Count	% of Cond*	% of App†	OMF[1] Code	Count	% of Cond*	% of App†
Weight, body build	246	30.2	3.4	Weight, body build	48	20.2	2.4
Lower extremities (except feet)	87	10.7	1.2	Lower extremities (except feet)	22	9.2	1.1
Psychiatric	57	7.0	0.8	Abdomen and viscera	18	7.6	0.9
Upper extremities	52	6.4	0.7	Upper extremities	17	7.1	0.9
Lungs and chest (includes breast)	48	5.9	0.7	Psychiatric	16	6.7	0.8
Total Applicants with OMF Codes	814		11.2	**Total Applicants with OMF Codes**	238		12.1
Total DES with Applications	7,247			**Total DES with Applications**	1,962		

OMF: Objective Medical Finding
*. Percent of applicants with each medical condition among all applicants with medical conditions.
†. Percent of applicants with each medical condition among all DES cases with a medical exam record.

Accession Medical Waiver

AMSARA enlisted waiver records include data on medical waivers considered by each service's waiver authority from 1995 to present. Only waiver applications that occurred prior to the date of medical evaluation board were included in these analyses. In cases where more than one waiver record was available for an individual only the most recent waiver record was included.

Table 17 shows the history of medical waiver application among enlisted service members evaluated for disability by year of disability evaluation and service. The overall prevalence of an accession medical waiver application was highest in the Army where nearly 7% of all disability evaluated service members applied for a waiver. Air Force members evaluated for disability had the lowest percentage of service members with an accession medical waiver, less than 3%. In the Navy and Marine Corps the rate of access medical waiver in the disability evaluated population was approximately 5%.

TABLE 17: HISTORY OF ACCESSION MEDICAL WAIVER APPLICATIONS AMONG ENLISTED SERVICE MEMBERS EVALUATED FOR DISABILITY BY YEAR OF DISABILITY EVALUATION: FY 2007-2012

	Army			Navy			Marine Corps			Air Force		
	Waiver App	Total*	%†	Waiver App	Total*	%†	Waiver App	Total*	%†	Waiver App	Total*	%†
2007	560	9,994	5.6	109	2,721	4.0	87	1,748	5.0	0	2,023	0.0
2008	644	10,551	6.1	120	2,583	4.6	102	1,954	5.2	77	3,580	2.2
2009	809	11,989	6.7	125	2,217	5.6	124	1,966	6.3	74	2,730	2.7
2010	871	12,446	7.0	111	2,503	4.4	134	2,506	5.3	68	3,191	2.1
2011	885	12,512	7.1	122	2,519	4.8	192	3,244	5.9	112	3,379	3.3
2012	1,125	14,858	7.6	213	3,680	5.8	286	5,118	5.6	111	3,157	3.5
Total	**4,894**	**72,350**	**6.8**	**800**	**16,223**	**4.9**	**925**	**16,536**	**5.6**	**442**	**18,060**	**2.4**

*.Total enlisted individuals evaluated for disability
†.Percent of enlisted disability cases with a history of accession medical wavier application

The leading diagnosis codes listed in medical accession waiver application records of enlisted service members are shown in Tables 18A-18D. Results are shown by year of disability evaluation comparing 2012 disability evaluations to those occurring in the previous five years. Among Army service members evaluated for disability who applied for a waiver the predominant condition in both 2012 and the preceding five years was hearing loss. In Navy service members evaluated for disability, disorders of refraction and accommodation was most common in 2012, but in the previous five year period slightly more waivers were granted for disorders of the bone and cartilage. Non-specific abnormal findings and other diseases of the bone and cartilage were the leading reasons Marine Corps personnel sought pre-accession medical waivers, regardless of the time period they became disabled. Among Air Force personnel evaluated for disability in 2012 and 2007-2011 the leading condition for which pre-accession medical waivers were sought was disorders of refraction and accommodation.

TABLE 18A: FIVE MOST COMMON ICD-9 DIAGNOSIS CODES FOR ACCESSION MEDICAL WAIVERS CONSIDERED AMONG ENLISTED INDIVIDUALS EVALUATED FOR DISABILITY: ARMY, FY 2007-2011 VS. FY 2012

2007-2011			2012		
ICD-9 Diagnosis Code	Count	%	ICD-9 Diagnosis Code	Count	%
Hearing loss	400	10.6	Hearing loss	144	12.8
Disorders of refraction and accommodation	274	7.3	Disorders of lipoid metabolism	77	6.8
Asthma	200	5.3	Disorders of refraction and accommodation	70	6.2
Other and unspecified disorders of bone and cartilage	179	4.7	Elevated blood pressure reading without diagnosis of hypertension	56	5.0
Elevated blood pressure reading without diagnosis of hypertension	171	4.5	Asthma	48	4.3
Total Waiver Applications	3,769		**Total Waiver Applications**	1,125	

TABLE 18B: FIVE MOST COMMON ICD-9 DIAGNOSIS CODES FOR ACCESSION MEDICAL WAIVERS CONSIDERED AMONG ENLISTED INDIVIDUALS EVALUATED FOR DISABILITY: NAVY, FY 2007-2011 VS. FY 2012

2007-2011			2012		
DoDI Diagnosis Code	Count	%	DoDI Diagnosis Code	Count	%
Other and unspecified disorders of bone and cartilage	56	9.5	Disorders of refraction and accommodation	22	10.3
Disorders of refraction and accommodation	53	9.0	Asthma	20	9.4
Hearing loss	44	7.5	Other and unspecified disorders of bone and cartilage	19	8.9
Asthma	34	5.8	Hearing loss	13	6.1
Essential hypertension	32	5.5	Essential hypertension	6	2.8
Total Waiver Applications	587		**Total Waiver Applications**	213	

TABLE 18C: FIVE MOST COMMON ICD-9 DIAGNOSIS CODES FOR ACCESSION MEDICAL WAIVERS CONSIDERED AMONG ENLISTED INDIVIDUALS EVALUATED FOR DISABILITY: MARINE CORPS, FY 2007-2011 VS. FY 2012

2007-2011			2012		
DoDI Diagnosis Code	Count	%	DoDI Diagnosis Code	Count	%
Other and unspecified disorders of bone and cartilage	87	13.6	Other nonspecific abnormal findings	32	11.2
Other nonspecific abnormal findings	63	9.9	Other and unspecified disorders of bone and cartilage	31	10.8
Disorders of refraction and accommodation	58	9.1	Asthma	26	9.1
Asthma	52	8.1	Disorders of refraction and accommodation	25	8.7
Hyperkinetic syndrome of childhood	40	6.3	Essential hypertension	18	6.3
Total Waiver Applications	639		**Total Waiver Applications**	286	

TABLE 18D: FIVE MOST COMMON ICD-9 DIAGNOSIS CODES FOR ACCESSION MEDICAL WAIVERS CONSIDERED AMONG ENLISTED INDIVIDUALS EVALUATED FOR DISABILITY: AIR FORCE, FY 2008-2011 VS. FY 2012

2008-2011			2012		
ICD-9 Diagnosis Code	Count	%	ICD-9 Diagnosis Code	Count	%
Disorders of refraction and accommodation	33	11.0	Disorders of refraction and accommodation	14	13.5
Hyperkinetic syndrome of childhood	21	7.0	Asthma	8	7.7
Affective psychoses	16	5.4	Affective psychoses	6	5.8
Asthma	14	4.7	Hyperkinetic syndrome of childhood	6	5.8
Symptoms concerning nutrition metabolism and development	13	4.3	Other derrangement of joint	4	3.8
Total Waiver Applications	299		**Total Waiver Applications**	104	

Hospitalization

Hospitalization records received by AMSARA include data on direct care inpatient visits among active duty service members from 2000 to present. Only hospitalizations that occurred prior to the date of medical evaluation board were included in these analyses. All hospitalizations that occurred among individuals who were later evaluated for disability were included in these analyses. However, only the diagnoses listed as primary in the hospitalization record were utilized in the creation of these tables.

Table 19 shows the history of hospitalization among service members evaluated for disability by year of disability evaluation and service. Overtime, the prevalence of hospitalization in the disability evaluated population has remained stable, with the exception of the Navy and Marine Corps where increases in hospitalization were observed in those evaluated for disability in 2012 as compared to previous years. Overall, the Air Force had the lowest percentage of service members evaluated for disability that had been hospitalized; rates of hospitalization were similar in the other three services.

TABLE 19: HISTORY OF HOSPITALIZATION BY YEAR OF DISABILITY EVALUATION: FY 2007-2011

	Army			Navy			Marines Corps			Air Force		
	Hosp	Total*	%	Hosp	Total*	%	Hosp	Total*	%	Hosp	Total*	%
2007	3,257	9,621	33.9	1,346	3934	34.2	977	2,611	37.4	355	2,027	17.5
2008	3,498	10,006	35.0	1,174	3215	36.5	996	2,651	37.6	686	3,474	19.7
2009	3,788	10,468	36.2	735	2174	33.8	784	2,161	36.3	607	2,593	23.4
2010	3,229	8,874	36.4	807	2114	38.2	762	2,219	34.3	712	3,013	23.6
2011	2,923	8,442	34.6	676	1894	35.7	874	2,445	35.7	738	3,112	23.7
2012	3,584	10,065	35.6	1,209	2979	40.6	1,453	3,729	39.0	660	2,952	22.4
Total	**20,279**	**57,476**	**35.3**	**5,947**	**16,310**	**36.5**	**5,846**	**15,816**	**37.0**	**3,758**	**17,171**	**21.9**

* Total disability evaluations

The most common primary diagnoses at hospitalization for service members evaluated for disability are shown in Tables 20A-20D. Psychiatric disorders were the leading reason for hospitalization among individuals evaluated for disability in 2011 in the Army, Navy, and Marine Corps. In the Army and Marine Corps adjustment disorders were the most common reason for hospitalization of individuals evaluated for disability in 2012 as well as those evaluated for disability in the previous five year period. Affective psychoses were the most common reason for hospitalization in 2012 Navy disability evaluations and evaluations in the previous five year period. In the Air Force the most common reason for hospitalization in 2012 was childbirth.

TABLE 20A: FIVE MOST COMMON ICD-9 PRIMARY DIAGNOSIS CODES FOR HOSPITALIZATIONS AMONG ACTIVE DUTY DISABILITY EVALUATIONS: ARMY, FY 2007-2011 VS. FY 2012

2007-2011			2012		
ICD-9 Diagnosis Code	Count	%	ICD-9 Diagnosis Code	Count	%
Adjustment disorders	996	6.0	Adjustment disorders	271	7.6
Episodic mood disorders	835	5.0	Intervertebral disc disorders	161	4.5
Intervertebral disc disorders	697	4.2	Episodic mood disorders	145	4.0
Symptoms involving respiratory system and other chest symptoms	381	2.3	Symptoms involving respiratory system and other chest symptoms	100	2.8
Other cellulitis and abscess	298	1.8	Acute appendicitis	72	2.0
Total DES Hospitalized	16,695		**Total DES Hospitalized**	3,584	

TABLE 20B: FIVE MOST COMMON ICD-9 PRIMARY DIAGNOSIS CODES FOR HOSPITALIZATIONS AMONG ACTIVE DUTY DISABILITY EVALUATIONS: NAVY, FY 2007-2011 VS. FY 2012

2007-2011			2012		
ICD-9 Diagnosis Code	Count	%	ICD-9 Diagnosis Code	Count	%
Affective psychoses	460	9.6	Affective psychoses	120	9.9
Intervertebral disc disorders	233	4.9	Adjustment disorders	104	8.6
Adjustment disorders	209	4.4	Trauma to perineum and vulva during delivery	93	7.7
Schizophrenic disorders	194	4.1	Intervertebral disc disorders	58	4.8
Trauma to perineum and vulva during delivery	194	4.1	Neurotic disorders	43	3.6
Total DES Hospitalized	4,783		**Total DES Hospitalized**	1,209	

TABLE 20C: FIVE MOST COMMON ICD-9 PRIMARY DIAGNOSIS CODES FOR HOSPITALIZATIONS AMONG ACTIVE DUTY DISABILITY EVALUATIONS: MARINE CORPS, FY 2007-2011 VS. FY 2012

2007-2011			2012		
ICD-9 Diagnosis Code	Count	%	ICD-9 Diagnosis Code	Count	%
Adjustment disorders	332	7.6	Adjustment disorders	118	8.1
Affective psychoses	327	7.4	Traumatic amputation of leg(s)	101	7.0
Internal derangement of knee	162	3.7	Affective psychoses	97	6.7
Fracture of tibia and fibula	151	3.4	Fracture of tibia and fibula	52	3.6
Intervertebral disc disorders	136	3.1	Acute appendicitis	47	3.2
Total DES Hospitalized	4,393		**Total DES Hospitalized**	1,453	

TABLE 20D: FIVE MOST COMMON ICD-9 PRIMARY DIAGNOSIS CODES FOR HOSPITALIZATIONS AMONG ACTIVE DUTY DISABILITY EVALUATIONS: AIR FORCE, FY 2008-2011 VS. FY 2012

2008-2011			2012		
ICD-9 Diagnosis Code	Count	%	ICD-9 Diagnosis Code	Count	%
Trauma to perineum and vulva during delivery	203	3.7	Trauma to perineum and vulva during delivery	50	4.1
Affective psychoses	202	3.7	Affective psychoses	45	3.7
Intervertebral disc disorders	148	2.7	Intervertebral disc disorders	30	2.5
Symptoms involving respiratory system and other chest symptoms	115	2.1	Adjustment reaction	29	2.4
Adjustment reaction	113	2.1	Symptoms involving respiratory system and other chest symptoms	29	2.4
Total DES Hospitalized	5,470		**Total DES Hospitalized**	1,206	

Database Limitations

- Data utilized in the generation of this report were initially collected for purposes of supporting the Accession Medical Standards Working Group (AMSWG) in the development of evidence-based medical accession standards to reduce morbidity and attrition due to pre-existing conditions. Data use agreements reflected data elements and study populations to support this research and required revision to support DES database analysis. Therefore, not all data elements were available for the full study period for all services.

- MOS at disability evaluation is only complete for Army for the full study period. The Department of the Navy collects information regarding MOS, but these variables were not included in the initial data extracts that were sent to AMSARA. Both MOS has been associated with disability in civilian and military literature and are essential to understanding the precise risk factors associated with disability evaluation, separation, and retirement in the military.

- MEB ICD-9 diagnosis codes of the medical condition that precipitated the disability evaluation are not included in any of the service disability datasets received by AMSARA. VASRD codes give an indication of the unfitting conditions referred to the PEB, but do not contain the level of detail available when diagnoses are coded using ICD-9 codes.

- While the majority of disability evaluations had an accession record in the AMSARA databases, some who undergo disability evaluation do not have an accession record in AMSARA databases. This may limit the ability to study the relationship between characteristics of service members at accession and disability evaluation, separation, and retirement in detail.

- None of the VASRD codes associated with medical conditions for which service members are evaluated for disability is identified as primary in the databases. Therefore, it cannot be determined which condition was the primary condition which precipitated disability evaluation and the impact and prevalence of some conditions in the population may be incorrectly characterized.

Data Quality and Standardization Recommendations

1. Accurate indicators of the medical conditions that result in disability rating are not available, precluding surveillance of or evaluation of conditions which lead to disability. Though VASRD codes are available, they are not diagnosis codes. To allow for more accurate surveillance of the burden of disability in the military, each service's DES database should include one or more MEB diagnoses in the electronic disability record, in the form of text and ICD-9 codes.

2. To ensure MOS is accurate at the time of disability evaluation, each service's DES database should record these variables at the time of disability evaluation. This will allow for the evaluation of the role of MOS on disability evaluation, separation, and retirement, including changes in these characteristics throughout length of service.

3. Date of the underlying injury or onset of the condition is an important variable to consider when utilizing disability evaluation system data, allowing for the measurement of time elapsed from onset to MEB to PEB to discharge. Though healthcare utilization patterns can be determined from hospitalization and ambulatory data, the precise date of the event, onset of symptoms, or initial diagnosis is difficult to infer from the data available. Each service should include additional variables within to indicate date of onset of illness or injury and whether medical condition for which a service member is undergoing disability.

4. High utilization of analogous codes, particularly among individuals with musculoskeletal disabilities, and lack of formal MEB medical diagnosis in the electronic file preclude the evaluation of the association of certain types of disability with specific medical conditions. In the absence of formal medical diagnoses that describe the disabling condition, expanding the VASRD codes, particularly musculoskeletal codes, may reduce the utilization of analogous codes and provide more complete information on the condition that precipitated the disability evaluation to inform interventions to decrease disability.

References

1. U.S. Department of Defense. Wounded, Ill and Injured Compensation and Benefits Handbook for Seriously Ill and Injured Members of the Armed Forces. Washington, DC: 2008. Retrieved from http://www.pdhealth.mil/hss/des.asp accessed April 10, 2013.

2. Peck CA. The U.S. Army Physical Disability System. In: Surgical Combat Casualty Care: Rehabilitation of the Injured Combatant, edited by Belandres PV and Dillingham TR. Washington, D.C.: Borden Institute, Walter Reed Army Medical Center and the Office of the Surgeon General, United States Army, 1999; 863-885.

3. Department of Defense Instruction 1332.38. Physical Disability Evaluations. 10 Jul 2006.

4. U.S. Department of the Air Force. Physical Evaluation for Retention, Retirement, and Separation. Washington, DC: DAF; 2006. Air Force Instruction 36-3212.

5. U.S. Department of the Army. Physical Evaluation for Retention, Retirement, and Separation. Washington, DC: DA; 2006. Army Regulation 635-40.

6. U.S. Department of the Navy. Disability and Evaluation Manual. Washington, DC: 2002. Secretary of the Navy Instruction 1850.4E.

7. National Defense Authorization Act FY 2008. HR1585

8. Accession Medical Standards Analysis and Research Activity Annual Report 2010. Retrieved from http://www.amsara.amedd.army.mil/ accessed April 10, 2013.

Special Studies

History of Deployment in Service Members Evaluated for a Disability

Background

The U.S. government over past decade has been monitoring the adverse effects of increasing the rate of deployment and deployment lengths in the military population [1]. Studies have shown that soldiers predisposed to longer deployments and increased deployment rotations are at increased risk of developing disabilities and mental health conditions [1-2]. Recent military operations in Iraq and Afghanistan, have resulted in a rise in disability evaluations among military personnel. The objective of this study is to describe trends in rates of deployment in the disability evaluated population over time as well the characteristics of deployed service members evaluated for disability.

Methods

All subjects were enlisted, active duty service members in the Army, Navy, and Marine Corps who received a disability evaluation between fiscal year 2005 to 2011. Air Force disability data are incomplete prior to 2007; therefore, only Air Force disability evaluations that occurred between 2007 and 2011 were included in this analysis. For the purpose of this study, personnel with a deployment begin date which occurred after the disability disposition date, and individuals with a deployment that was less than 30 days or longer than 730 days were not included in the analyses.

Data on history of deployments was provided by the Defense Manpower Data Center (DMDC). Information on history of disability was acquired through service specific DES databases. Disability evaluation records include demographic characteristics of the service member at the time of disability evaluation as well as information pertaining to the disability evaluation, including date of disposition, the conditions for which the service member was deemed unfit for continued service, defined using VASRD codes, and disability rating. Only records of first disability evaluation were used in this analysis.

Results

Figure 1 shows the respective rates of deployment for the Army, Navy, and Marine Corps for 2005-2011. Due to incomplete data collection prior to 2007Rates are only presented for FY 2007–2011 for the Air Force. Over the seven year time period personnel within each respective service were subject to increased rates of deployments. Army personnel with a first time disability evaluation were deployed at the highest rate during the seven year period where as the Navy had the lowest rate of deployments among individuals evaluated for a disability discharge.

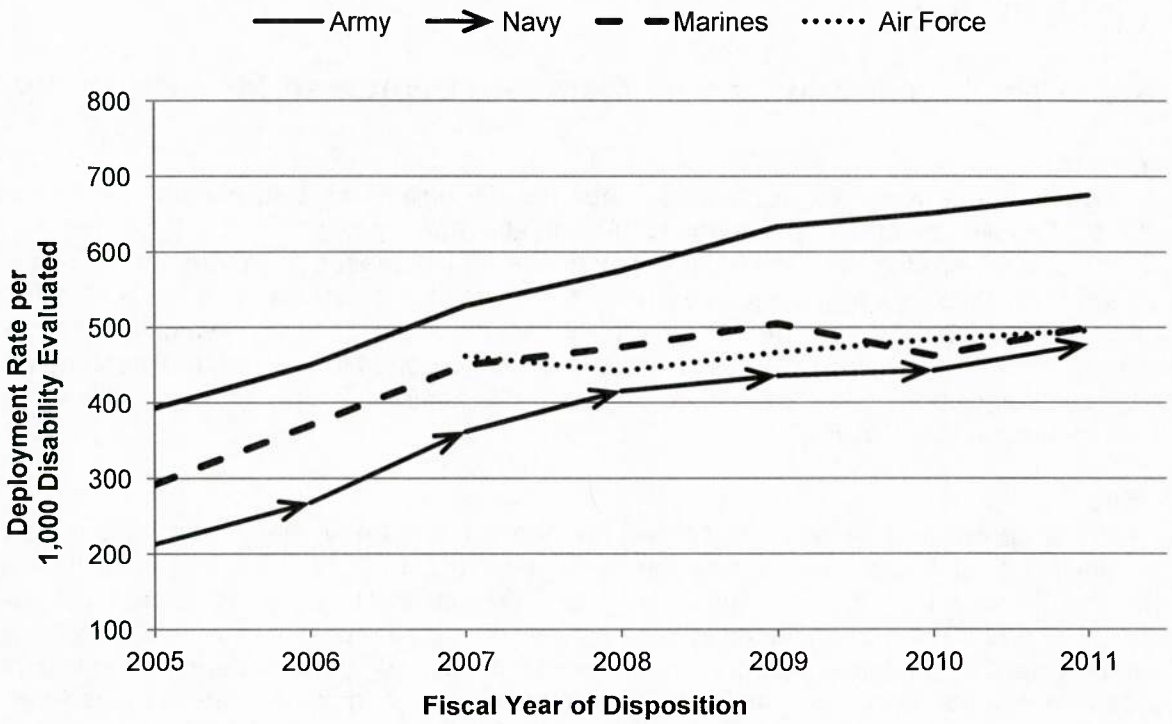


FIGURE5: DEPLOYMENT RATE AMONG DISABILITY EVALUATED BY FISCAL YEAR OF DISPOSITION AND SERVICE

Demographic characteristics at time of disability evaluation are shown in Table 21 for disability evaluated service members by deployment status. In total 53,260 male and 12,308 female service members were included in the study. In all services disability evaluated service members who deployed were more frequently male and aged 20-29 as compared to non-deployers. In the Army and Marine Corps a higher proportion of deployers were of white race as compared to non-deployers. In the Navy a higher proportion of disability evaluations whose race was classified as other, including Asian and Pacific Islanders, were deployed. In the Air Force distributions of the deployed and non-deployed by race were similar in deployers and non-deployers. Length of service, calculated as the years elapsed between accession and first disability evaluation disposition, was longer in deployed disability evaluations than in non-deployed regardless of service.

TABLE 21: CHARACTERISTICS OF SERVICE MEMBERS EVALUATED FOR DISABILITY DISCHARGE AT FIRST DISABILITY EVALUATION BY DEPLOYMENT HISTORY 2005-2011

	Army		Navy		Marine Corps		Air Force†	
	Deployed	Non-deployed	Deployed	Non-deployed	Deployed	Non-deployed	Deployed	Non-deployed
N	36,710	28,924	5,732	10,598	6,263	8,140	5,107	5,710
Sex %								
Male	89.3	70.8	81.6	74.1	95.6	84.9	75.0	62.9
Female	10.6	29.1	18.3	25.8	4.3	15.0	25.0	37.1
Missing	0.1	0.1	0.1	0.1	0.1	0.1	-	-
Age at Disability Evaluation %								
<20	0.3	6.5	0.3	3.3	0.6	10.9	0.1	5.3
20-29	62.1	56.0	56.5	60.0	81.3	75.0	47.1	62.2
30-39	23.7	20.1	29.5	23.3	12.8	9.4	23.3	13.4
≥40	9.5	14.3	9.2	9.7	1.8	2.5	7.7	6.0
Missing	4.4	3.1	4.5	3.7	3.5	2.2	21.8	13.1
Race %								
White	74.6	71.3	62.2	66.8	73.4	70.4	76.1	75.8
Black	16.8	21.4	20.9	18.0	7.4	9.8	16.4	16.6
Other	8.6	7.2	16.7	2.9	18.9	19.5	7.5	7.6
Missing	0.0	0.1	0.2	0.3	0.3	0.3	-	-
Years of Service								
Mean ± SD	5.33±2.40	3.04±2.55	6.14±2.32	4.54±2.49	5.89±2.35	3.60±2.31	6.51 ±2.29	3.79±2.45

†Due to high number of missing values in the Air Force, estimates do not reflect the proportion of missing for both the sex and race categories

Characteristics of deployments among the disability evaluated population are show in Table 22. Multiple deployments were most common the Marine Corps and Navy. In addition, individuals evaluated for disability in these services were more frequently deployed on three or more occasions. In the Army the majority of the disability evaluated population who deployed were only deployed once. Single and multiple deployments were evenly distributed in the Air Force disability population, each representing about half of the disability evaluated who deployed. Deployments were longest in the Army where median deployment was more the two times the length of Air Force median deployment length. Army service members also spent more time deployed.

TABLE 22: CHARACTERISTICS OF DEPLOYMENTS IN DISABILITY EVALUATED POPULATION BY SERVICE

	Army	Navy	Marine Corps	Air Force
Deployments	50,820	7,698	8,903	8,807
Service members	35,574	5,666	6,241	4,995
One Deployment	64.5%	67.7%	63.9%	50.8%
>1 Deployment	35.5%	32.4%	36.1%	49.2%
Number of Deployments				
1	64.5%	67.7%	63.9%	50.8%
2	26.4%	23.5%	28.8%	27.3%
3+	9.1%	8.9%	7.3%	21.9%
First Deployment length (months)				
Mean± SD	8.83±4.26	5.45±2.66	6.10±3.62	4.18±2.12
Median	9.9	5.9	6.4	4.0
All Deployments lengths (months)				
Mean ± SD	9.10±3.86	5.43 ±2.60	6.12±2.76	4.21±1.94
Median	9.7	5.7	6.3	4.1
Deployment Rate	54.2%	34.7%	43.4%	46.2%

Discussion

The rate of deployment in the disabled population has increased in all services in the period from 2005 to 2011. As a whole, service members who are disability evaluated and have been deployed are more commonly male and younger than service members who are evaluated for disability but have no history of deployment. Multiple deployments are common among the Navy and Marine Corps disability population; Army deployments are longer on average then deployments in other services.

This preliminary investigation of deployment history in the disability evaluation population raises many questions with respect to the precise relationship between deployment length and disability. Further research is necessary to determine how the deployed disability evaluated population differs from the deployed population as a whole. In addition, assessment of deployment length, frequency, and time between multiple deployments as risk factors for disability overall and for specific conditions should be the subject of future research.

References

1. Steele-Fisher GK, Zaslavsky AM, Blendon RJ. Health-Related Impact of Deployment Extensions on Spouses of Active Duty Army Personnel. Mil Med 2008;173(3):221-229.

2. Adler AB, Castro CA, Huffman AH, Bliese PD. The Impact of Deployment Length and Experience on the Well-Being of Male and Female Soldiers. J Occup Health Psychol 2005;10(2),121-137.

Epidemiology of Traumatic Brain Injury, Posttraumatic Stress Disorder, and Psychiatric Disability in the Army and Marine Corps

Background

Psychiatric and neurological conditions are increasingly common in the military and rank among the top three causes of disability in the Army and Navy [1,2]. Incident Posttraumatic Stress Disorder (PTSD) cases, among those deployed in all military services, have steadily increased between 2001 and 2008 [3]. Neurological conditions also contribute greatly to morbidity in the military. In 2011, Traumatic Brain Injury (TBI) was the most prevalent disability type among all neurological disabilities in the Army and Marine Corps [4]. Incident cases of TBI have risen nearly every year between 2000 and 2008, with diagnosed cases nearly tripling over this period [3].

In addition to the physical morbidity associated with these psychiatric and neurological conditions, the cost burden is also high [5,6]. Costs of ongoing treatment of service members and veteran with PTSD and TBI is significant [5,6] and increased attrition has been observed in service members with mental disorder.[7]. Given the increasing incidence of TBI and psychiatric disorder and the high cost of disability associated with these conditions additional research about these populations is needed. This study sought to extend existing research by determining the distribution of demographic and disability evaluation characteristics as well as comorbidity in Army and Marine Corps TBI, PTSD and non-PTSD psychiatric disability cases.

Methods

Included in this cross sectional study were Army and Marine Corps service members diagnosed with a TBI disability between fiscal years 2005 and 2010 as well as individuals with PTSD and non-PTSD psychiatric disorders diagnosed between fiscal years 2005 and 2011. The three types of disability cases explored in this study –PTSD, non-PTSD psychiatric disorders and TBI – utilized the Veterans Administration Schedule for Rating Disabilities (VASRD) classifications. Disability caused by TBI was defined using VASRD code 8045 (residuals of traumatic brain injury). PTSD cases consisted of VASRD code 9411, and non-PTSD psychiatric disorders VASRD codes ranged from 9200 to 9599, excluding code 9411 (PTSD).

Results

Within this sample, there were 3,892 TBI cases, 13,497 PTSD cases and 9,125 non-PTSD psychiatric cases among Army and Marine Corps service members. Study participants, regardless of service and disability type, were primarily enlisted, active duty, white, male and between the ages of 20 and 29 (see Table 22). The majority of Army service members, in all three disability types, also had a deployment experience; however, Marines with a non-PTSD psychiatric disorder diagnosis had a lower prevalence of deployment (47.7%) compared to Marines with PTSD and TBI (92.5% and 78.2%, respectively).

TABLE 23: DEMOGRAPHIC CHARACTERISTICS OF PTSD, TBI, AND NON-PTSD PSYCHIATRIC DISABILITY CASES BY SERVICE AND DISABILITY CONDITION

	Army			Marine Corps		
	Non-PTSD Psych (N=7,780)	PTSD (N=11,711)	TBI (N=3,034)	Non-PTSD Psych (N=1,345)	PTSD (N=1,726)	TBI (N=858)
	%	%	%	%	%	%
Gender						
Male	80.1	92.2	94.5	90.7	95.5	98.3
Female	19.9	7.8	5.5	9.3	4.5	1.7
Age at First Evaluation						
<20	1.6	0.3	0.6	3.6	0.6	0.7
20-29	52.5	52.6	55.3	77.2	81.5	82.1
30-39	27.2	30.7	28.7	15.8	15.6	14.7
≥40	18.7	16.4	15.4	3.4	2.3	2.1
Race						
White	71.1	77.0	79.5	70.1	75.2	74.8
Black	18.4	12.7	11.3	9.3	5.4	4.3
Other	10.5	10.2	9.2	20.6	19.4	20.4
Rank						
Enlisted	92.2	96.2	94.9	97.3	98.7	97.7
Officer	7.8	3.8	5.0	2.7	1.3	2.3
Component						
Active	78.9	83.0	79.2	93.6	87.8	90.9
Reserve	21.1	17.0	20.8	6.4	12.2	9.1
Deployed						
Yes	62.3	96.3	83.9	47.7	92.5	78.2
No	37.7	3.7	16.1	52.3	7.5	21.8

Most study participants received a final disposition of retired (range: 69%-85%) and had a disability percent rating of at least 30 (see Table 23). The majority of PTSD and TBI cases, in both the Army and Marine Corps, were deemed combat related. For example, 91% of PTSD cases in the Army were combat related compared to only about 20% of non-PTSD Psychiatric cases. On average, service members in the Marine Corps, regardless of disability type, took several more months to receive a final disability disposition compared to those in the Army. The average months to final disposition in Marine Corps PTSD cases was 16.3 months versus 8.2 months in Army PTSD cases.

TABLE 24: DISABILITY EVALUATION CHARACTERISTICS OF PTSD, TBI, AND NON-PTSD PSYCHIATRIC DISABILITY CASES BY SERVICE AND DISABILITY CONDITION

	Army			Marine Corps		
	Non-PTSD Psych (N=7,780)	PTSD (N=11,711)	TBI (N=3,034)	Non-PTSD Psych (N=1,345)	PTSD (N=1,726)	TBI (N=858)
	%	%	%	%	%	%
Disposition						
Retired	69.1	86.7	84.9	69.5	81.9	84.3
SWSP	21.6	11.9	12.1	28.6	16.5	13.4
SWOB	6.6	0.3	0.9	0.0	0.0	0.0
Fit	0.7	0.0	0.2	0.0	0.0	0.0
Percent Rating						
<30	30.3	12.6	14.3	28.5	16.2	21.9
≥30	69.7	87.4	84.4	71.5	83.8	86.1
Combat Related						
Yes	20.0	91.2	74.8	21.0	85.6	69.6
No	80.0	8.8	25.2	79.0	14.4	17.8
Years of Service						
N	4,699	7,180	1,942	1,116	1,429	752
Mean(SD)	4.3(2.3)	5.6(2.4)	4.9(2.2)	3.9(2.0)	5.1(2.1)	4.1(3.1)
Months to Final Disposition						
N	7,674	11,441	2,926	1,274	1,462	756
Mean(SD)	8.3(13.0)	8.2(11.6)	7.3(11.7)	13.8(18.1)	16.3(18.0)	13.0(17.8)
Number of Conditions Rated						
N	7,780	11,711	3,034	1,345	1,726	752
Mean(SD)	1.9(1.1)	2.3(1.2)	3.0(1.0)	1.8(1.2)	2.0(1.2)	4.1(3.1)

Table 24 presents the top three comorbid disability conditions among those diagnosed with TBI, PTSD and non-PTSD psychiatric disorders. Within the Army, all three types of disability cases were comorbid with dorsopathies. Among Army and Marine Corps service members, the leading comorbid condition for non-PTSD psychiatric cases was mood disorder; approximately 51% of Army service members with non-PTSD psychiatric disorders had mood disorder comorbidity. For TBI cases, in both services, the top two comorbid disabilities were dementia and PTSD, with dementia leading in the Marine Corps and PTSD leading in the Army. Between 40-45% of TBI cases were comorbid with PTSD.

TABLE 25: COMORBID DISABILITY CONDITIONS IN PTSD, TBI, AND NON-PTSD PSYCHIATRIC DISABILITY CASES BY SERVICE AND DISABILITY CONDITION

	Army			Marine Corps	
	Count	%		Count	%
Non-PTSD Psychiatric					
Mood Disorder	3,955	50.8	Mood Disorder	635	47.2
Dorsopathies	1,659	21.3	Dementia	362	26.9
Anxiety Disorder	1,628	20.9	Residuals of traumatic brain injury	352	26.2
Total Individuals	**7,780**		**Total Individuals**	**1,345**	
PTSD Cases					
Dorsopathies	3,853	32.9	Residuals of traumatic brain injury	410	23.8
Arthritis	2,030	17.3	Dorsopathies	165	9.6
Residuals of traumatic brain injury	1,841	15.7	Limitation of motion	148	8.6
Total Individuals	**11,711**		**Total Individuals**	**1,726**	
TBI Cases					
Posttraumatic stress disorder	1,376	45.4	Dementia	445	51.9
Dementia	948	31.2	Posttraumatic stress disorder	344	40.1
Dorsopathies	875	28.8	Paralysis	117	13.6
Total Individuals	**3,034**		**Total Individuals**	**858**	

Discussion

Overall, there was much consistency in the distribution of the demographic and disability evaluation characteristics among the disability types – PTSD, non-PTSD psychiatric disorders and TBI - for Army and Marine Corps service members. Discrepancies were found, however, regarding the deployment and months to final disposition variables. The prevalence of deployment experiences among those diagnosed with non-PTSD psychiatric disorder varied by service, and the distributions of months to final disposition fluctuated by service in all disability case types. Consistent with existing literature, [8] this study found that Army and Marine Corps service members with PTSD had a high prevalence of combat exposure. Data from this study also points to comorbidity between TBI and PTSD. This is in keeping with previous studies, which report that TBI is significantly associated with PTSD [9,10]. Studies found that 44% of deployed service members with TBI met the criteria for PTSD shortly after deployment[10]. While much of the existing literature on TBI and psychiatric disorders employ a variety of disorder assessment tools, including self-assessment, [8] cases in this study were all evaluated by physicians who assigned the appropriate VASRD code. The results of this study provide additional demographic, disability evaluation and comorbidity information about the growing population of service members affected by psychiatric and neurological disabilities.

References

1. Bell NS, Schwartz CE, Harford TC, Hollander IE, Amoroso PJ. Temporal changes in the nature of disability: U.S. Army soldiers discharged with disability, 1981-2005. Disabil Health J 2008;1(3):163-171.

2. Songer TJ, LaPorte RE. Disabilities due to injury in the military. Am J Prev Med 2000;18(3 Suppl):33-40.

3. Fischer H. U.S. Military Casualty Statistics: Operation New Dawn, Operation Iraqi Freedom, and Operation Enduring Freedom. Washington, D.C.: Congressional Research Service. 2010.

4. Gubata ME, Niebuhr D, Cowan DN, et al. Tri-service Disability Evaluation System Database Review Annual Report 2011. Silver Spring, MD: Walter Reed Army Institute of Research;2012. Retrieved from http://www.amsara.amedd.army.mil/Documents/DES_AR/DES_AR_2011.PDF accessed April 8, 2013.

5. Gilliland A. The costs of treating post traumatic stress disorder and mild traumatic brain injuries. Wright-Patterson Air Force Base, Ohio: Department of Systems and Engineering Management, Department of the Air Force Air University. 2010.

6. Bilmes L, Stiglitz J. The Econmic Costs of the Iraq War: An Appraisal Three Years after the Beginning of the Conflict. Cambridge, MA: National Bureau of Economic Research. 2006.

7. Hoge CW, Lesikar SE, Guevara R, et al. Mental disorders among U.S. military personnel in the 1990s: association with high levels of health care utilization and early military attrition. Am J Psychiatry 2002;159(9):1576-1583.

8. Ramchand R, Karney BR, Osilla KC, Burns RM, Caldarone LB. Prevalence of PTSD, Depression, and TBI Among Returning Servicemembers. In: Tanlielian T, Jaycox L, eds. Invisible Wounds of War: Psychological and Cognitive Injuries, Their Consequences, and Services to Assist Recovery. Arlington, VA: RAND Center for Military Health Policy Research. 2008;81-131.

9. Stein MB, McAllister TW. Exploring the convergence of posttraumatic stress disorder and mild traumatic brain injury. Am J Psychiatry 2009;166(7):768-776.

10. Hoge CW, McGurk D, Thomas JL, Cox AL, Engel CC, Castro CA. Mild traumatic brain injury in U.S. Soldiers returning from Iraq. N Engl J Med 2008;358(5):453-463.

Accession Risk Factors for Disability: 2003-2010

Background

Musculoskeletal, psychiatric, and neurological disabilities are the most common reasons service members are evaluated for discharge from active duty service [1,2]. Hearing loss is the most common and costly among disability claims processed by Veterans Affairs (VA) [3]. Because of the significant burden of hearing loss at the VA and the burden of musculoskeletal, psychiatric, and neurological conditions at the DoD DES, it is important to understand pre-accession characteristics that may be predictive of later disability for these highly prevalent disability conditions. Characteristics of military applicants prior to accession have been extensively examined in previous studies to predict risk of attrition [4-10]. Though disability in the military has been examined in many studies, these studies have not addressed the role of accession risk factors as a predictor of disability evaluation and discharge [6-8]. In order to describe the accession demographic, service, and medical characteristics that are predictive of disability, five studies were conducted of highly prevalent disabilities in the DoD DES and VA.

Methods

Cases were selected from the population of Army and Marine Corps disability evaluations that occurred between October 1, 2002 and September 30, 2010 who had both an accession and application record in AMSARA databases. The specific VASRD code utilized varied based on the condition studied. For hearing loss, cases were defined as individuals evaluated for a disability with a VASRD code of 6100. Similarly, TBI cases were defined as individuals evaluated for disability with a VASRD code of 8045 in their disability evaluation record and PTSD cases were defined as individuals with a VASRD code of 9411. For arthritis and back-related disability a range of VASRD codes was used to encompass the full spectrum of disabilities that could be classified as related to either of these conditions.

Controls were frequency matched to cases on year of accession and service at a ratio of 5:1. For PTSD studies, controls were also matched to cases on sex and deployment status. Service members were excluded from the population of controls if they had any record of disability evaluation in any service or if they did not have an applicant and accession record.

Results

Distribution of demographic and service characteristics of cases and controls are shown in Table 26. Hearing and TBI cases were more frequently male when compared to controls. Arthritis cases were more frequently female as compared to controls. Higher percentages of the disability evaluated population were older than 25 years at the time of disability evaluation, regardless of condition, when compared to controls. A higher proportion of hearing loss an PTSD cases were white relative to controls and all types of disability cases had higher education levels, at the time of accession that controls.

Occupation category was only evaluated as a risk factor for TBI and PTSD disability but combat arms MOS were more common in both TBI and PTSD cases as compared to controls. TBI and hearing loss disability cases were more likely to be deployed than controls, while arthritis cases were less likely to be deployed than controls. The deployment rate in back-related disability cases was similar to that observed in controls. The largest difference in years of service was observed in TBI cases as compared to controls.

TABLE 26: DEMOGRAPHIC AND SERVICE CHARACTERISTICS OF CASES AND CONTROLS

	Hearing Cases: 372 Controls: 1,860		TBI Cases: 1,938 Controls: 9,690		PTSD* Cases: 4,389 Controls: 21,945		Arthritis Cases: 13,882 Controls: 69,570		Back Cases: 10,044 Controls: 50,220	
	Cases	Cont	Cases	Cont	Cases	Cont	Cases	Cont	Cases	Cont
Sex										
Male	97.8	82.2	96.3	85.0	-	-	78.5	82.5	82.4	81.7
Female	2.2	17.7	3.7	15.0	-	-	21.5	17.5	17.6	18.3
Age										
<20	42.2	50.3	49.6	55.0	45.7	53.5	38.8	53.1	34.5	21.9
20-24	33.3	32.3	32.0	30.3	35.3	34.4	35.7	30.5	34.9	30.8
25-29	14.8	9.6	10.9	8.1	11.9	8.3	14.1	9.2	14.8	9.6
≥30	9.7	7.7	7.5	6.6	6.9	3.8	11.4	7.2	15.7	7.7
Race										
White	87.4	77.3	75.6	72.1	83.7	77.5	79.2	76.4	79.3	76.2
Black	5.6	16.3	15.5	18.8	8.6	13.9	12.7	15.8	12.8	16.2
Other	6.7	5.6	6.6	6.5	6.6	7.5	6.7	6.3	6.4	6.1
Education										
Less than HS	1.3	7.6	3.7	8.8	5.7	4.2	3.7	10.8	3.3	11.3
HS Diploma	83.9	78.4	90.4	84.6	86.8	86.8	87.0	81.0	86.7	80.2
Some College or Higher	9.1	8.2	5.7	6.4	2.9	4.6	9.2	8.0	9.9	8.4
Occupation										
Combat Arms	-	-	41.7	19.2	45.7	31.0	-	-	-	-
Other	-	-	58.3	80.8	54.3	69.0	-	-	-	-
Deployed										
Yes	72.6	57.8	83.3	55.1	-	-	58.4	43.1	55.9	56.8
No	27.4	42.2	16.7	44.9	-	-	41.6	56.9	44.1	43.2
Deployment Frequency										
None	27.4	42.2	16.7	44.9	-	-	58.4	43.1	44.1	43.2
1	49.2	30.8	53.3	30.9	56.5	42.2	30.4	31.2	39.6	31.4
2	18.0	18.0	25.0	17.9	31.9	34.8	9.2	17.6	13.5	17.2
3+	5.4	9.1	5.1	6.4	8.2	17.3	2.1	8.1	2.8	8.2
Years of Service										
Mean	-	-	3.5	4.5	4.9	4.4	3.2	3.8	3.8	3.3

CSS: Combat Service Support
Cases and controls were matched on gender and deployment in addition to service and accession year. Analysis was restricted to individuals who deployed

Table 27 shows the accession medical characteristics of cases and controls. Pre-accession disqualification status differed when comparing cases to controls in all studies except the TBI study where cases and controls had similar rates of disqualification prior to accession. The largest difference between cases and controls was observed in the hearing loss study where 22% of cases had a permanent disqualification as compared to about 7% of controls. In the case of hearing loss, most of the permanent disqualifications were for hearing deficiency. PTSD disability cases were more likely to have psychiatric disqualifications than controls and musculoskeletal and body composition disqualifications were more common in arthritis and back cases. Accession medical waivers are relatively rare in the accessed population. However, relative to controls all cases, except PTSD, had higher rates of medical waiver prior to accession. For hearing loss disability cases, the difference in waiver rates between cases and controls can be attributed to hearing loss waivers and in arthritis and back-related disability cases differences in waiver rates can be attributed to waivers for musculoskeletal conditions. No specific waiver condition accounted for the overall difference in waiver rates when comparing TBI disability cases to controls.

TABLE 27: ACCESSION MEDICAL CHARACTERISTICS OF CASES AND CONTROLS

	Hearing Cases: 372 Controls: 1,860		**TBI** Cases: 1,938 Controls: 9,690		**PTSD** Cases: 4,389 Controls: 21,945		**Arthritis** Cases: 13,882 Controls: 69,570		**Back** Cases: 10,044 Controls:50,220	
	Cases	Cont	Cases	Cont	Cases	Cont	Cases	Cont	Cases	Cont
DQ Status										
Fully Qualified	70.2	86.4	86.2	86.6	83.9	85.1	81.2	86.2	82.9	86.1
Permanent DQ	22.0	7.3	7.2	7.2	6.4	6.0	8.6	6.5	8.0	6.5
Temporary DQ	7.8	6.3	6.7	6.2	9.8	8.9	10.1	7.3	9.2	7.4
DQ Type										
Fully Qualified	70.2	86.4	86.2	86.6	83.9	85.7	81.2	86.2	82.9	86.1
Hearing	20.2	1.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Psychiatric	N/A	N/A	2.6	2.2	3.2	2.4	N/A	N/A	N/A	N/A
Neurological	N/A	N/A	0.2	0.2	N/A	N/A	N/A	N/A	N/A	N/A
Musculoskeletal	N/A	N/A	N/A	N/A	N/A	N/A	2.1	1.1	2.5	1.9
Body Composition	N/A	N/A	N/A	N/A	N/A	N/A	7.0	4.5	6.1	4.7
Other	12.4	12.6	10.3	10.7	13.3	12.5	11.2	8.6	10.5	8.5
Accession Medical Waiver										
Yes	17.2	4.4	6.7	4.8	5.3	5.1	7.8	4.7	7.0	4.7
No	82.8	95.6	93.3	95.2	94.7	94.9	92.2	95.3	93.0	95.3
Medical Waiver Type										
No Waiver	82.8	95.6	93.3	95.2	94.9	94.9	92.2	95.3	93.0	95.3
Hearing	12.4	0.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Psychiatric	N/A	N/A	0.6	0.6	0.3	0.3	N/A	N/A	N/A	N/A
Neurological	N/A	N/A	0	0.1	N/A	N/A	N/A	N/A	N/A	N/A
Musculoskeletal	N/A	N/A	N/A	N/A	N/A	N/A	1.9	0.8	1.3	0.8
Other	5.6	4.0	6.0	5.6	4.8	4.8	11.2	8.6	5.7	3.9

N/A: Not applicable. Indicates variable was not studied for a given condition

Occurrence of incident diagnosis is shown for cases and controls in Table 28. Nearly all hearing loss, PTSD, arthritis, and back-related disability cases had an ambulatory diagnosis related to their disability condition. Incident hearing lost diagnoses most commonly occurred after the second year of service in both cases and controls. However, incident hearing loss more frequently occurred in the first year of service for cases then controls. Incident PTSD and TBI diagnoses were also most common after the second year of service. While musculoskeletal conditions and back conditions in arthritis and back-related disability cases respectively most commonly occurred in the first year of service in both cases and controls.

TABLE 28: OCCURRENCE OF INCIDENT AMBULATORY DIAGNOSIS IN CASES AND CONTROLS BY CASE DISABILITY TYPE IN THOSE WITH AT LEAST ONE AMBULATORY ENCOUNTER

	Hearing Cases: 362 Controls: 132		**TBI‡** Cases: 1,129 Controls: 577		**PTSD*** Cases: 4,371 Controls: 10,700		**Arthritis†** Case: 13,882 Controls:47,857		**Back** Case: 9,862 Controls: 14,103	
	Cases	Cont	Cases	Cont	Cases	Cont	Cases	Cont	Cases	Cont
First year of service	25.7	14.1	7.1	21.3	14.1	18.9	83.7	72.0	43.7	42.6
Second year of service	24.6	21.4	15.2	14.7	21.4	17.4	8.9	11.5	21.9	16.1
After second year of service	49.7	64.5	77.7	64.0	64.5	63.7	7.4	16.5	34.4	41.4
Total Percent with Diagnosis	**97%**	**7%**	**58%**	**6%**	**99%**	**49%**	**99%**	**69%**	**98%**	**28%**

*Incident diagnosis=any psychiatric diagnosis.
‡Incident diagnosis=any neurological diagnosis.
†Incident diagnosis=any musculoskeletal diagnosis.

Discussion

Accession medical characteristics are associated with disability evaluation later in service for hearing loss, PTSD, arthritis, and back conditions. For TBI disability, no association was found between medical characteristics at the time of application for military service and disability. The condition specific medical disqualifications prior to accession were most common in hearing loss disability cases, but were also found in PTSD, arthritis, and back disabilities. For non-musculoskeletal conditions, incident ambulatory diagnosis of a condition related to the disability under study occurred most frequently after the second year of service. Among the musculoskeletal disabilities, incident diagnosis occurred most frequently in the first year of service.

The results of these studies suggest that medical characteristics at accession are associated with disability evaluation later in service. However, these results also show that the relationship between medical characteristics at accession and disability evaluation varies based on the disability condition. Further research is necessary to determine if other types of disability evaluations (e.g. asthma, mood disorders, non-PTSD psychiatric conditions) are similarly associated with medical characteristics at accession.

References

1. Bell NS, Schwartz CE, Harford TC, Hollander IE, Amoroso PJ. Temporal changes in the nature of disability: U.S. Army soldiers discharged with disability, 1981-2005. Disabil Health J 2008;1(3):163-171.

2. Gubata ME, Niebuhr DW, Cowan DN et al. Tri-service Disability Evaluation Systems Database Analysis and Research, 2012 Annual Report. Silver Spring MD: Walter Reed Army Institute of Research, 2012. Retrieved from http://www.amsara.amedd.army.mil/Documents/DES_AR/DES%20AR2012%20final%20copy.pdf accessed April 8, 2013.

3. Veterans Benefits Administration. Annual benefits report fiscal year 2011. U.S. Department of Veterans Affairs, 2011. Retrieved from: http://www.vba.va.gov/reports/abr/index.asp accessed April 8, 2013.

4. Larsson H, Broman L, Harms-Ringdahl K. Individual Risk Factors Associated with Premature Discharge from Military Service. Mil Med, 2009;174(1): 9-20.

5. Knapik JJ, Canham-Chervak M, Hauret K, Hoedebecke E, Laurin MJ, Cuthie J. Discharges during U.S. Army basic training: injury rates and risk factors. Mil Med, 2001;166(7):641-647.

6. Bedno SA, Lang CE, Daniell WE, Wiesen AR, Datu B, Niebuhr DW. Association of weight at enlistment with enrollment in the Army Weight Control Program and subsequent attrition in the Assessment of Recruit Motivation and Strength Study. Mil Med. 2010;175(3):188-193.

7. Niebuhr DW, Scott CT, Li Y, Bedno SA, Han W, Powers TE. Preaccession fitness and body composition as predictors of attrition in U.S. Army recruits. Mil Med 2009;174(7):695-701.

8. Niebuhr DW, Scott CT, Powers TE et al. Assessment of recruit motivation and strength study: preaccession physical fitness assessment predicts early attrition. Mil Med. 2008;173(6):555-562.

9. Bell NS, Schwartz CE, Harford T, Hollander IE, Amoroso PJ. The changing profile of disability in the U.S. Army: 1981-2005. Disabil Health J 2008;1(1):14-24.

10. Bell NS, Schwartz CE, Harford TC, Hollander IE, Amoroso PJ. Temporal changes in the nature of disability: U.S. Army soldiers discharged with disability, 1981-2005. Disabil Health J, 2008;1(3):163-171.

11. Songer TJ. LaPorte RE. Disabilities Due to Injury in the Military. Am J Prev Med 2000;8(3Suppl): 33-40.

Variations in Time to Final Disposition and Disability Rating among Army PTSD Disability Cases Removed from Temporary Disability Retirement

Background

Upon severe injury or illness, a service member is referred into the Disability Evaluation System (DES), which evaluates the service member's medical conditions and assigns a disability rating and a disposition. If the DES concludes that severity of the service member's conditions could change within five years, the service member is assigned a disposition of placed on the temporary retirement disability list (TDRL) and is reevaluated every 18 months until a final disability disposition can be assigned [1].

According to the National Defense Authorization Act of 2008 (NDAA), all service members disability evaluated for posttraumatic stress disorder (PTSD) must be placed on the TDRL with a disability rating of at least 50% and be re-evaluated in 6 months [2]. Since PTSD disability in Army service members has substantially increased in both prevalence and severity since the start of Operation Iraqi Freedom, Operation Enduring Freedom and New Dawn [3], implementation of the NDAA may have further increased the caseload of the DES and delayed final disposition determinations for service members. The purpose of this study is to describe the demographic and disability evaluation characteristics of Army service members evaluated for PTSD by the DES after the implementation of the NDAA and to investigate changes in disability rating to ascertain how often PTSD improves or worsens over time.

Methods

In this cross-sectional study, Army service members were included if evaluated by the DES for a PTSD disability, placed on the TDRL and assigned a final disposition between 1 October 2008 and 31 September 2012. A service member was identified as being evaluated for PTSD if the service member's most recent evaluation included the Veterans Affairs Schedule of Rating Disabilities (VASRD) code indicating PTSD (9411).

The U.S. Army Physical Disability Agency in Washington, DC provided data from disability evaluations, including demographics, evaluation dates, disposition, disability ratings, medical condition codes and a determination on whether the condition was related to combat. Age was grouped into the following four categories: younger than 20; between 20 years and 29 years, between 30 years and 39 years; and, 40 years and older. Race was categorized into white, black and other.

Demographic and disability evaluation characteristics of the study population were described using frequencies and proportions. Length of time to final disposition was determined as the time period in months between placement on the TDRL and assignment of a final disposition. The disability ratings assigned upon placement on the TDRL and at the final disposition determination were compared to assess whether the disability rating changed over time. Frequencies and proportions described the characteristics of the final ratings and dispositions, stratified by direction of rating change over time.

Results

The study population included 2,834 Army service members who were evaluated for PTSD, placed on the TDRL and assigned a final disposition between 2008 and 2012. Demographic characteristics of the study population at placement on the TDRL are described in Table 29. The population was primarily comprised of white active duty enlisted males between 20 and 39 years old evaluated for PTSD related to combat and given an initial disability rating of 60% or higher. All initial disability ratings below 50% were assigned in 2008, with the exception of one which was assigned in 2009.

TABLE 29: DEMOGRAPHIC CHARACTERISTICS OF THE STUDY POPULATION: FY 2008-2012

	Count	%
Fiscal Year		
2008	719	25.4
2009	1,129	39.8
2010	784	27.7
2011	202	7.1
2012	0	0.0
Sex		
Male	2,592	91.6
Female	239	8.4
Age		
<20	2	0.1
20-29	1,342	47.4
30-39	949	33.5
≥ 40	538	19.0
Race		
White	2,148	75.8
Black	371	13.1
Other	315	11.1
Component		
Active	2,066	72.9
Reserves	768	27.1
Rank		
Enlisted	2,711	95.7
Officer	123	4.3
Combat Related		
Yes	2,654	93.7
No	180	6.3
Initial Rating		
30	129	4.6
40	74	2.6
50	868	30.6
60-100	1,763	62.2

Approximately 98% of the population was assigned a final disposition at their first re-evaluation, which usually occurred within 36 months from placement on the TDRL (Table 30). Nearly all (95%) of service members were medically discharged upon re-evaluation, with 4% medically discharged with severance pay, and less than 1% found fit.

TABLE 30: EVALUATION CHARACTERISTICS OF FINAL DISABILITY DISPOSITION DETERMINATION

	Count	%
Duration from Placement on TDRL to Final Disposition		
<12 months	86	3.0
12 to 24 months	1,567	55.3
25 to 36 months	715	25.2
37 to 48 months	201	7.1
49 to 60 months	27	1.0
>60 months	238	8.4
Evaluation of Final Disposition		
2nd evaluation	2,783	98.2
3rd evaluation	51	1.8
Final Disposition*		
Medical retirement	2,678	94.5
Medical discharge with severance	111	3.9
Fit	27	0.9
Other	18	0.6

* Other includes administrative termination and transfer to retired reserve.

Table 31 presents the characteristics of the final disability ratings. A quarter of the population were assigned a disability rating between 30% and 40%, while 71% were assigned a disability rating of 50% or higher. Approximately 60% of service members were assigned a final disability rating which was either higher or the same as the initial disability rating.

TABLE 31: CHARACTERISTICS OF FINAL RATINGS*

	Count	%
Final Rating		
0-20	113	4.1
30-40	689	24.7
50	504	18.1
60-100	1,480	53.1
Rating Change		
Increase	741	26.8
Decrease	1,087	39.0
No Change	958	34.4

* Service members assigned a Fit or Other disposition do not receive a final rating and were not included in this table.

When stratified by direction of the rating change, all service members with either an increase or no change in disability rating were medically retired, usually with a final disability rating of 60% or higher (Table 32). For those who received a final disability rating lower than the initial rating, 90% were medically retired and 10% were discharged with severance pay.

TABLE 32: CHARACTERISTICS OF FINAL RATINGS AND DISPOSITION BY TYPE OF RATING CHANGE

	No Change (n=958)		Increase (n=741)		Decrease (n=1,087)	
	Count	%	Count	%	Count	%
Final Rating						
0-20	0	0.0	0	0.0	113	10.4
30-40	59	6.2	11	1.5	619	56.9
50	308	32.1	44	5.9	152	14.0
60-100	591	61.7	686	92.6	203	18.7
Final Disposition						
Medical retirement	958	100.0	741	100.0	976	89.8
Medical discharge with severance	0	0.0	0	0.0	111	10.2

* Service members assigned a Fit or Other disposition do not receive a final rating and were not included in this table.

Discussion

The proportion of PTSD cases placed on the TDRL and given a final disposition decreased over time most likely due to the short study period, as the average amount of time a service member spends on the TDRL is approximately two years [4]. The NDAA mandated that service members diagnosed with PTSD be re-evaluated in six months following placement on the TDRL. In this study, 98% of service members received a final disposition at their first re-evaluation, yet only 3% of the population was assigned a final disposition within 12 months of TDRL placement. This finding indicates a lengthy time lag between medical reevaluations, which may signify challenges in scheduling reexaminations due to the increasing burden on the health care system and DES from placing all PTSD cases on the TDRL.

Prior research on Army service members placed on the TDRL due to any mental disorder from 2005 to 2009 demonstrated that 84% were medically retired and 61% received a change in disability rating upon re-evaluation [4]. In comparison, this study reveals that service members placed on the TDRL due to PTSD have a higher proportion which are medically retired (95% vs. 84%), and had a slightly higher proportion which received a disability rating change (66% vs 61%).

This study provides evidence that establishing guidance directed at improving the management of PTSD cases placed on the TDRL may decrease the burden on the service member, the health care system and the disability evaluation system. Since 95% of the population was medical retired, usually at the first reexamination, future research is needed to examine whether automatic placement on the TDRL is appropriate. In addition, future research is needed to examine the likelihood of PTSD significantly changing in severity over time.

References

1. Under Secretary of Defense, Personnel and Readiness. Physical disability evaluation (DoD Instruction 1332.38). Washington DC, Department of Defense. 1996. Retrieved from http://www.dtic.mil/whs/directives/corres/pdf/133238p.pdf accessed April 8, 2013

2. Under Secretary of Defense, Personnel and Readiness. Policy memorandum on implementing disability-related provisions of the National Defense Authorization Act of 2008. Washington DC, Department of Defense. 2008.

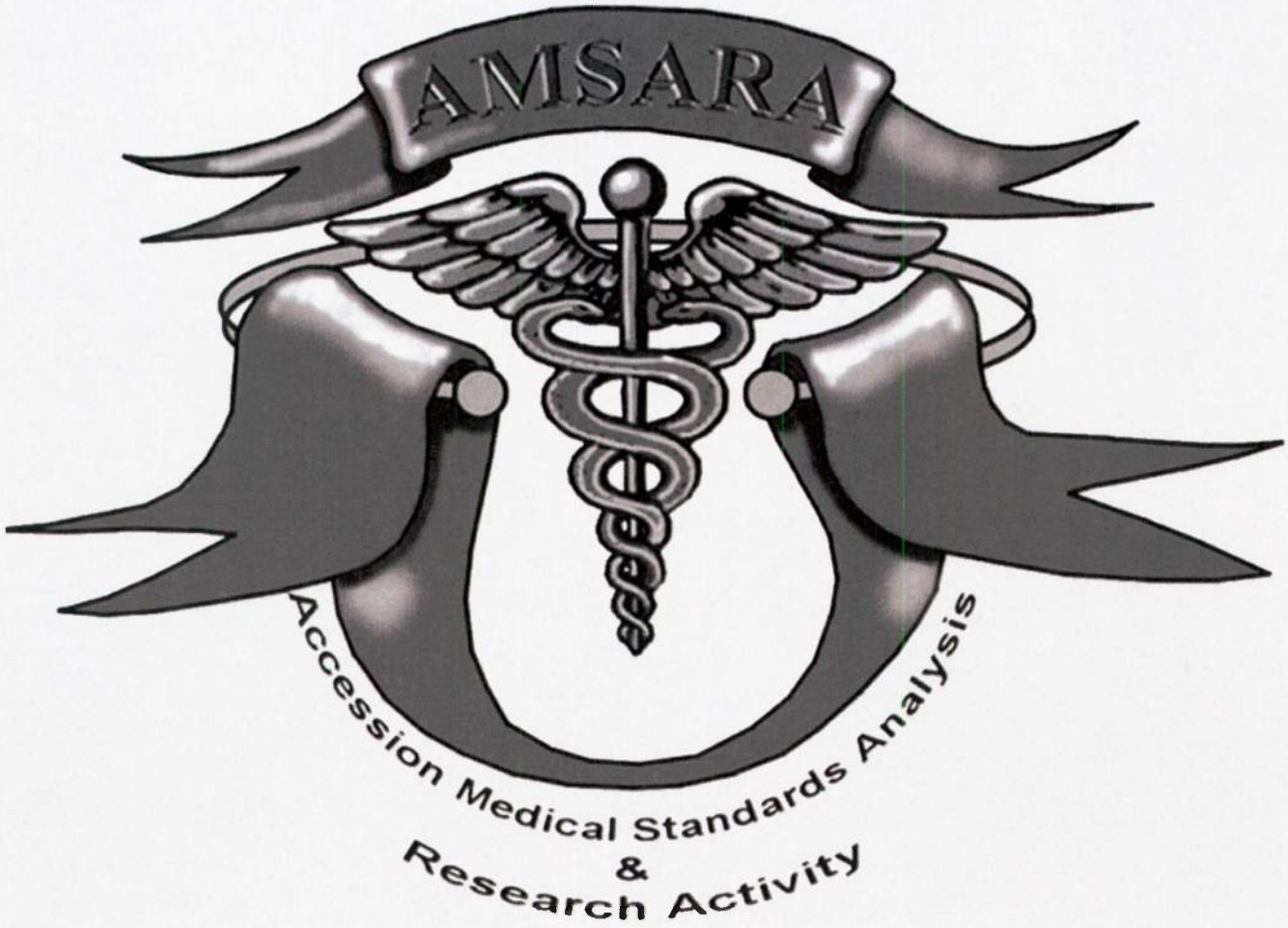
3. Packnett ER, Gubata ME, Cowan DN, Niebuhr DW. Temporal trends in the epidemiology of disabilities related to posttraumatic stress disorder in the U.S. Army and Marine Corps from 2005-2010. J Trauma Stress 2012, 25(5):485-493.

4. Piccirillo AL, Gubata ME, Blandford CD, Packnett ER, Cowan DN, Niebuhr DW. Temporary disability retirement cases: variations in time to final disposition and disability rating by service and medical condition. Mil Med 2012;177(4):417-422.

Frequently Used Acronyms

AMSARA	Accession Medical Standards Analysis and Research Activity
DES	Disability Evaluation System
FPEB	Formal Physical Evaluation Board
FY	Fiscal Year
ICD-9	International Classification of Disease, 9th Revision
IPEB	Informal Physical Evaluation Board
MEB	Medical Evaluation Board
MEPS	Military Entrance Processing Station
MOS	Military Occupational Specialty
OMF	Objective medical findings
PEB	Physical Evaluation Board
PTSD	Posttraumatic Stress Disorder
TBI	Traumatic Brain Injury
TDRL	Temporary Disability Retirement List
VASRD	Veterans Affairs Schedule for Rating Disabilities

WTR-13-004



Accession Medical Standards Analysis & Research Activity

Preventive Medicine Program
Walter Reed Army Institute of Research
503 Robert Grant Avenue
Forest Glen Annex
Silver Spring, MD 20910
http://www.amsara.amedd.army.mil